# SUKUK AND MACROECONOMIC VARIABLES: EMPIRICAL EVIDENCE FROM PANEL DATA

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MASTER OF SCIENCE (FINANCE)

UNIVERSITI UTARA MALAYSIA

DECEMBER 2016

# SUKUK AND MACROECONOMIC VARIABLES: EMPIRICAL EVIDENCE FROM PANEL DATA

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**Thesis Submitted to**

**Scholl of Economics, Finance, and Banking (SEFB)**

**Universiti Utara Malaysia**

**In Partial Fulfillment of the Requirement for the Master of Science (Finance)**

Pusat Pengajian Ekonomi, Kewangan dan Perbankan
SCHOOL OF ECONOMICS, FINANCE, AND BANKING
Universiti Utara Malaysia

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## ABSTRAK

Sukuk boleh dirujuk kepada sijil dengan nilai yang sama yang mewakili pemilikan aset ketara, faedah dan perkhidmatan, pemilikan aset sepanjang projek atau aktiviti pelaburan. Sukuk memainkan peranan utama dalam Pasaran Modal Islam untuk kesejahteraan pembangunan kewangan Islam bagi menghadapi tekanan dalam industri perbankan dan kewangan secara global. Kajian ini dijalankan untuk menguji hubungan diantara sukuk dan pembolehubah makroekonomi yang terdiri daripada KDNK (Keluaran dalam negara kasar) per kapita, penduduk, dan pelaburan asing. Kajian yang dijalankan dari tujuh negara Islam seperti Malaysia, Indonesia, Arab Saudi, Uni Arab Emirates, Turki, Bahrain dan Sudan bagi tempoh 2000-2015 dengan menggunakan pendekatan data panel yang dipilih. Model Kesan Tetap *(Fixed Effect)* telah digunakan dalam kajian ini untuk menganalisis hubungan diantara pembolehubah. Hasil kajian ini mendapati bahawa terdapat hubungan yang positif dan signifikan antara terbitan sukuk (*Sukuk issuance*) dan pertumbuhan ekonomi (KDNK), yang menerangkan bahawa lebih tinggi tahap terbitan sukuk, lebih banyak sumbangan yang diperolehi dalam pertumbuhan ekonomi. Hasil kajian ini adalah selari dengan Teori Harrod-Domar, yang mana pelaburan adalah aspek yang penting untuk pertumbuhan ekonomi. Tambahan lagi, kajian ini juga mendapati bahawa terdapat hubungan yang positif dan signifikan antara penduduk dengan sukuk terbitan. Tambahan, implikasi utama penemuan ialah sukuk menjadi instrumen pembiayaan penting dalam pasaran modal.



Kata kunci: terbitan sukuk, pertumbuhan ekonomi, penduduk, panel data, pasaran modal islam

## ABSTRACT

*Sukuk* can be referred to a certificate with the same value that represents the ownership of tangible assets, benefits and services, asset ownership over projects or investment activities. The Islamic capital market, particularly *sukuk* has a prime role to the development of Islamic finance into a mainstream force in the global banking and finance industry. The purpose of this study was attempted to test the relationship of *sukuk* and macroeconomic variables namely; GDP per Capita, Population and Foreign Direct Investment. The study conducted from seven selected Islamic countries such as Malaysia, Indonesia, Saudi Arabia, United Arab Emirates, Turkey, Bahrain and Sudan for the period of 2000-2015 using the panel data approach. The fixed effect model was employed to analyze the relationship of those variables. The findings of this study showed that there is a positive and significant relationship between *sukuk* issuance and economic growth, which implied that the higher level of *sukuk* issuance, the more the contribution to the economic growth. The results are consistent with the theory Harrod-Domar, where investment is an important aspect of economic growth. Furthermore, the study found that there is a positive and significant relationship between the population and *sukuk* issuance. In addition, the major implication of the findings is that *sukuk* are becoming important financing instruments in the capital market.



*Keywords*: *sukuk* issuance, economic growth, population, panel data, islamic capital market

## ACKNOWLEDGEMENT

First of all, I want to thanks and gratitude to Allah Almighty for the grace, guidance and gift so I can finish this thesis in order to complete the requirements for Master of Science (Finance) level at Universiti Utara Malaysia (UUM).

I would like to say my honest gratitude to my supervisor Dr. Sabri Bin Nayan who always provide the guidance, prayer, trust, advice and time during my learning period. It's all priceless for me, thank you very much Dr.

For all lecturer who has been guiding me since the beginning of entry until I complete this study. Thank you for all the precious information and knowledge that you've given to me.

I would like to thank my father, Sumarli and my mother, Yohani for their prayer and support. For my grandfather, Katio for your attention, and also my brothers, Arief and Ahmadi. Thank you for motivating me. You all are the best for the rest of my life.

Finally, for my all time supporter who has accompanied me, Ikbar and my best friends, Faiza, Noor, Faida, Ifa, Phili, and Aim. Thank you for motivating me. You all are amazing.

I wish may Allah Almighty give bountifully rewarded for all your kindness. Finally, I realized that in the writing of this thesis is still far from perfection. Therefore, I invoke suggestions and criticisms for the sake of completeness and may provide benefits to another reader. Thank you

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## LIST OF ABBREVIATIONS

| | | |
|---|---|---|
| $\beta_0$ | = | Constant |
| $\beta_1$ | = | Coefficient of the Parameters |
| $\mu$ | = | Error Term |
| i | = | Cross-sectional Unit |
| t | = | Time Period |
| Ln | = | Natural Log |
| $H_1$ | = | First hypothesis |
| $H_2$ | = | Second hypothesis |
| AAOIFI | = | Accounting and Auditing Organization for Islamic Financial Institutions |
| GFC | = | Global Financial Crisis |
| FDI | = | Foreign Direct Investment |
| GDP | = | Gross Domestic Product |
| IFSB | = | Islamic Financial Services Board |
| IIFM | = | International Islamic Financial Market |
| OJK | = | Otoritas Jasa Keuangan |
| SC | = | Securities Commission |
| SBIS | = | Sertifikat Bank Indonesia Syariah |
| SPV | = | Special Purpose Vehicle |

# CHAPTER 1

# INTRODUCTION

## 1.0 Introduction

*Sukuk* as the most active instrument in Islamic capital market that has a role as an alternative source of funding and investment opportunities that meet the need of customers, such as reserve manager, central banks and public pension fund managers. Historically, the idea of *sukuk* have been legitimized through the Organization of Islamic Convention (OIC) in Jeddah, Kingdom of Saudi Arabia from 6-11 February 1988 and clear the option approach to meet the speculators need who want the wellspring of their financing based on the *shariah* standard (Islamic Development Bank, 2000). Therefore, since that day, the development of *sukuk* market significantly increase in the world, especially in the Middle East and South East Asia.

According to the Accounting and Auditing Organization for Islamic Financial Institution (AAOIFI, 2010), *sukuk* is defined as the certificate of equal value representing the division of shares in the ownership of the tangible asset, assets of a specified projects or specified investment activities and usufruct and services. In general, this study analyzes the relationship between *sukuk* and macroeconomic variables. The use of macroeconomics variables of Gross Domestic Product (GDP), Population and Foreign Direct Investment (FDI) assessed against the issuance of *sukuk* for selected countries such as Malaysia, Indonesia, Saudi Arabia, United Arab Emirates, Turkey, Bahrain and Sudan. By reviewing existing literature based on emerging and developed market, this study tries to provide evidence as to whether *sukuk* has a significant relationship with macroeconomic variables.

## 1.1 Overview of World *Sukuk* Market

The development of *sukuk* market continues growth in the worldwide. In the year 2012 and 2013, International Islamic Financial Market (IIFM) *sukuk* report stated that *sukuk* market has maintained it growth rate. However, in 2014 *sukuk* market recorded a decrease in the issuing of USD1,729 million due to the external forces such as declining world oil prices and uncertainty in the global financial system. Furthermore, the declining of global *sukuk* issuance also occurs in 2015 amounted USD 46,267 million shown in figure 1.1. The main factor causes a slowdown in the global *sukuk* issuances due to the decrease in the number of domestic *sukuk* issuance from USD80,570 million in 2014 to USD39,813 million in 2015 as shown in figure 1.2. Although the main cause of declining is because of Bank Negara Malaysia (BNM) decision to stop continuing the short-term investment *sukuk* issuance of USD45 billion or approximately 35%, other players appeared to issue domestic *sukuk* in large number such as Indonesia of USD2 billion in May 2015 and Bahrain from USD1.33 billion in 2014 to USD3 billion in 2015 respectively.

According to Zawya (2016), the issuance of *sukuk* as per September 2016 has reached USD39.5 billion compared to 2015 of 47.3 billion. There are three factors that shape the performance of *sukuk* in 2016, including the development of monetary policy in the US and Europe, declining world oil price and the possible lifting of sanction in Iran (CIMB, 2016). In July 2016, coinciding with the month of Ramadhan and Eid al-Fitr, the *sukuk* has decreased relatively sluggish. It noted that the government of Oman issued the *sukuk* of USD500.0 million, Malaysia amounted to USD170.0 million and followed by Saudi Arabia USD87.17 million.

Figure 1.1 *Total Global Sukuk Issuance (Jan 2001-Dec 2015) - All Tenors, All Currencies, In USD Million*

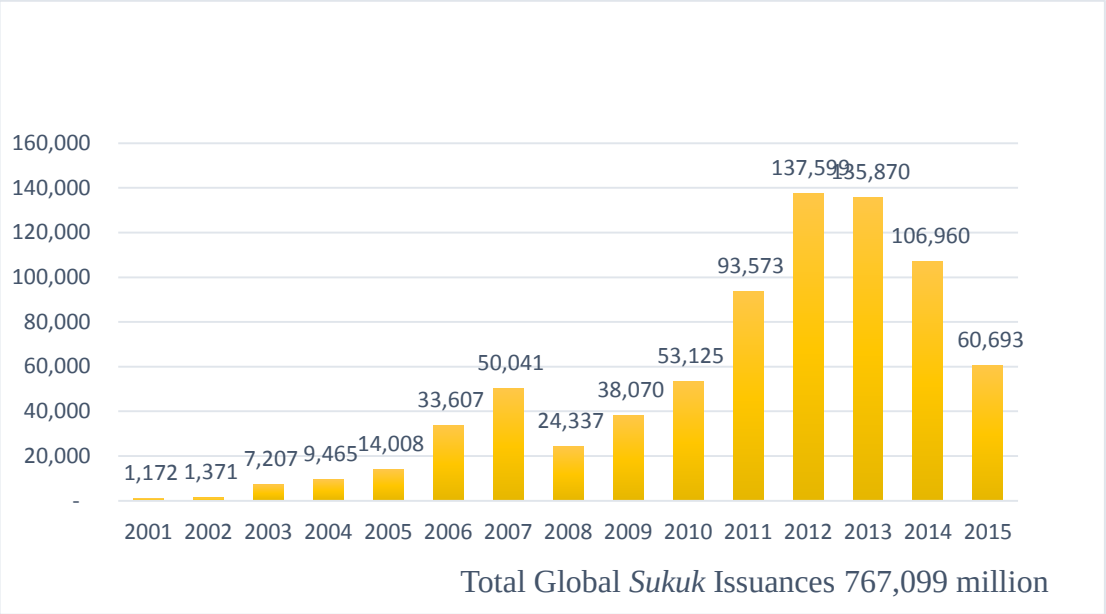
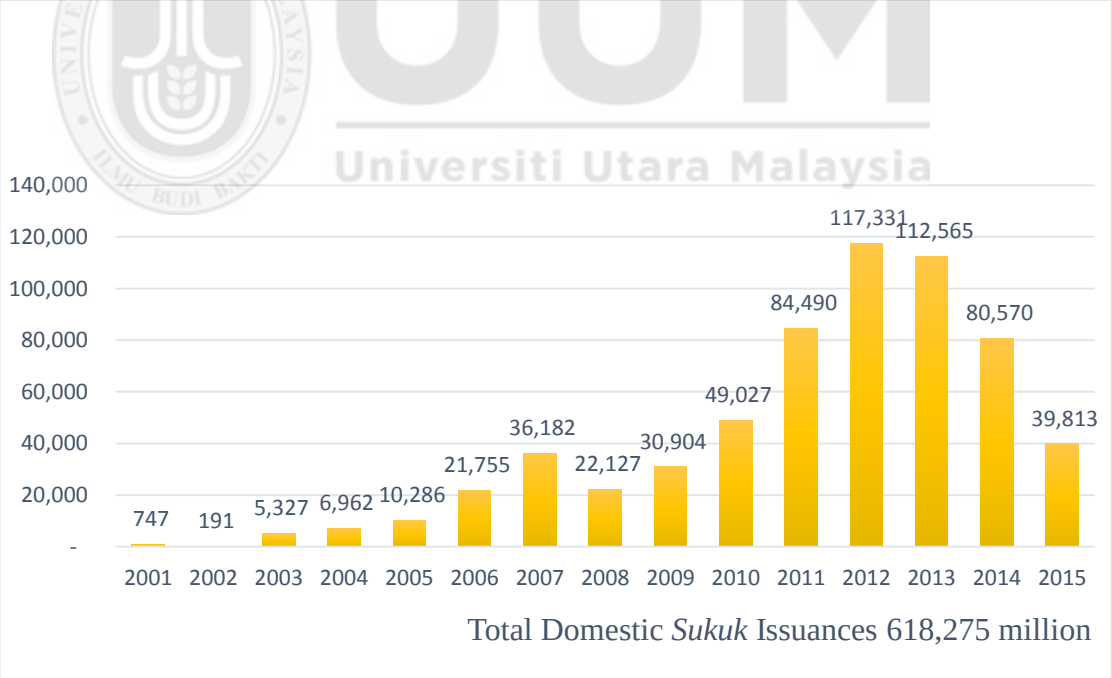



Figure 1.1 *Total Domestic Sukuk Issuance (Jan 2001-Dec 2015) - All Tenors, All Currencies, In USD Million*



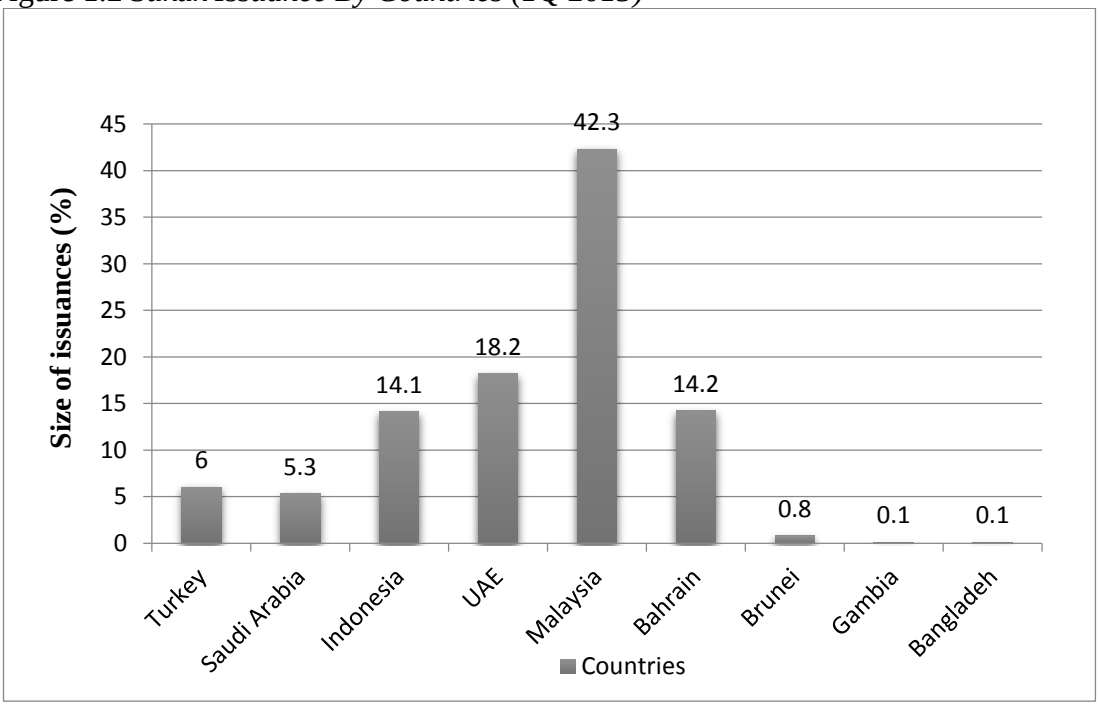

*Source*: IIFM *Sukuk* Report (5th edition)

Furthermore, the opportunities for the development of *sukuk* market in sovereign countries also provides a good signal. Hong Kong recorded has issued *sukuk* amounting to USD1,000 million in 2014 and continued until 2015. In 2014 also recorded UK issued sovereign and quasi-sovereign *sukuk* more than GBP2 billion (USD339.5 million) and other countries like Luxemburg, and South Africa with a value USD220 million and USD500 million respectively. In addition, Malaysia recorded has issued sovereign *sukuk* with the longest maturity that is 30 years old.

Countries in the Middle East and South East Asia are the central of Islamic finance adopt *sukuk.* Gulf Cooperation Council (GCC) countries which consist middle east countries such as Saudi Arabia, Kuwait, United Arab Emirates, Qatar, Bahrain and Oman that have a tremendous growth rate in the past three decades and overall, Malaysia as a country in the part of South East Asia is the largest issued *sukuk* in the world as shown in figure 1.3.



Figure 1.2 *Sukuk Issuance By Countries (1Q 2015)*




*Source*: Global *Sukuk* Report 1Q 2015

The industry of Islamic finance in GCC countries has been developed since 1973. The first banking sector applied Islamic finances are Kuwait Finance House and Dubai Islamic Bank in 1975. The development of Islamic finance continuously increased and at the end of the year 2011 recorded about 50 banks in GCC countries which fully offer products and services based on Islamic principles. Furthermore, until now, GCC countries believed to have the largest Islamic banking sector, both in term of the Islamic interbank money market, the growth of Islamic capital market (*Sukuk*) and the Islamic insurance market (*Takaful*) (Grassa & Gazdar, 2013).

Malaysia and Indonesia are countries with the largest Muslim population in the world. The Islamic finance industry initially started with the arrangement of an Islamic bank. However, after several years, the Islamic finance industry broadened its scope by setting up other Islamic financial institutions and instruments such as Islamic stocks, Islamic insurance, Islamic bonds, the Islamic wealth management as well as Islamic mutual funds and so on. These components working unitary and bolster each other, hence they grow side by side. However, in term of the development of *sukuk* market, Malaysia have been started early rather than Indonesia.

Malaysia is the largest *sukuk* market in the world and encourages *sukuk* to contribute to the Malaysian capital market. Islamic Finance Information Service (IFIS) reported that Shell MDS who be the first issued corporate *sukuk* in Malaysia on 1990 and followed by Kumpulan Guthrie Berhad as the first issued international *sukuk* based on *ijarah* structure in 2001. Furthermore, Federation of Malaysia completed the international *sukuk* issuance on 2002 in the form of USD are sold internationally such as in Asia and Middle East region.

In 2010, the popularity of *sukuk* in Malaysia exceeding conventional bonds more than 50% of issuance. It recorded the total amount of the issuance of *sukuk* to RM30 billion or approximately 56% of the total *sukuk* issuance (Malaysia Bond Market Guide, 2011). Asian Development Bank reported that *sukuk* global market continues to improvement in 2013 to USD281.3 billion. Malaysia became the largest *sukuk* market that holds 67% of the total number of outstanding *sukuk* in the world from 1994 to 2014. More precisely, Malaysia *sukuk* market consists of 96% local currency issuance (USD431,65 billion) & 4% (USD17.44) (Malaysia Islamic Finance Report, 2015).

However, during a global financial crisis in 2008 Malaysia suffered a disastrous blow against a declined in a number of *sukuk* issuance to 50% from previous year amounted from RM58 billion to RM20.8 billion in 2007 (Abdullah, Burhan, & Syah, 2009). This condition also affect the number of *sukuk* issuance, where the total *sukuk* issuance in 2007 and 2008 amounted to 38.6 billion and 15 billion respectively. Furthermore, this situation did not last longer due to in 2009 the states of *sukuk* market in Malaysia improved even reach 54% of the total amount of the issuance of *sukuk* in the world (SC, 2009). In addition, an impact on the global financial crisis, during autumn in 2008, the UK government announced a plan to issues *sukuk* that is design to address the gap in the regulatory treatment of *sukuk* and bonds in the UK (Wedderburn, 2010).

Besides that, the *sukuk* market development also occurred in Indonesia as the country with the largest Muslim population in the world. Islamic finance in has been started since 1992 and firstly issued *sukuk* by Indosat Corporation in 2002 with a value of USD17.5 million based on *Mudharabah* structure. At the end of 2007, there were recorded 25 corporate *sukuk* were issued with a value of Rp3.6 trillion which

came from some leading companies such as the state electricity company (PLN), National Oil Company (Pertamina), Matahari, and the National Plantation (PTPN 7) (Yumanita, 2008). On the other hand, the first government *sukuk* (namely SBSN or *sukuk* Negara) issuance occurred in 2008 by the name of IFR *sukuk* and followed by SR, SNI and SDHI in 2009. As of 28th September 2015, total issuance of *sukuk* Negara amounted Rp369.18 trillion (IIFM *Sukuk* Report, 2016). However, the popularity of corporate *sukuk* slightly lagged compared to the government *sukuk* by amount per September 2015 was Rp14.5 trillion (USD1.45 billion).

## 1.2 Problem Statement

Currently, the global Islamic financial industry started undergoing evolution, especially *sukuk* which is the most influential instrument in the capital market as it acts as the bond instrument in the Islamic counterparts. *Sukuk* has a value of international emissions continue to increase from year to year either from *shariah* or conventional based investor. The issuance of *sukuk* as investment instrument could be utilized to reduce macroeconomic issues, for examples inflation and unemployment. Therefore, the issue of the relationship between economic growth as one of the indicators of macroeconomics is inseparable to the *sukuk*. Economic growth can be defined as the increase of GDP regardless of whether the increase is greater or less than the rate of population growth and whether there is a changes in economic structure or not. One evidence prompts that economic growth positively effects on the *sukuk* (Ahmad et al, 2012; Said & Grassa, 2013; Selvianty, 2015; Rini, 2012). Their study emphasized that positive relationship between economic growth and *sukuk*. Furthermore, the study conducted by (Nayan & Kadir, 2014; Ascarya & Yumanita, 2008) had shown a positive relationship between *sukuk* and economic growth. Another study such as Elkarim (2012) found that economic growth had a significant relationship to the *sukuk* issuance with the negative effect. However, according to Grassa & Gazdar (2014), *sukuk* market does not contribute to the economic growth in GCC due to the market of *sukuk* is small and still newcomers compared to the conventional. Therefore, based on the inclusive evidence that has been shown, it was interesting to investigate the relationship between *sukuk* and economic growth.

*Sukuk* or Islamic bond is known as instruments to fame over the past few decades and widely used in the Muslim or non-Muslim countries. These can be seen

with the positive trend of *sukuk* demand and issuance in the capital market that spurred infrastructure development and capacity projects in most of the countries such as GCC Countries, Asia and even in developed countries like the UK and US. Therefore, the population has the role to the issuance and demand of *sukuk*. The existence of the population can play a role in encouraging the economic growth. As mentioned in Rostow theory stated that to achieve economic growth it required high level of investment as well as the existence of the role of population. However, the level of investment should exceeds the number of population with the goal of keeping an increase in GDP ratio. Thus, it required control of the population so that the economic growth a country can run smoothly. According to Ahmad & Radzi (2011) the high demand of Muslim population in the world for *sukuk* encouraging Islamic financial instruments tend to be the catalyst in the Islamic capital market. However, the high demand of *sukuk* is not accompanied by supply and affect to the liquidity of *sukuk* in the secondary market. Furthermore, research conducted by Said & Grassa (2013) stated that the population level does not affect to the development of *sukuk* market. But, the high number of the population who practiced Muslim religion influences on the growth of the *sukuk* market. Thus, considering the inclusive findings, another purpose of this study is concerning the relationship between population and *sukuk.*

## 1.3 Research Question

The motivations of this study are to explore the relationship between *sukuk* and economic growth. To address this issue series, there are two research questions are posed which is:

1.0 Does *sukuk* issuance contribute to economic growth?

2.0 What are the relationship between *sukuk* issuance and population?

## 1.4 Research Objective

The main motivation of this study is to analyze the relationship between *sukuk* and macroeconomic factors. Specifically, the research objectives are as follows:

1.0 To investigates the impact of *sukuk* issuance on economic growth

1.2 To examines the relationship between *sukuk* issuance and population

## 1.5 Significance or Contribution of the Study

Many previous study focus on the theoretical and structure of *sukuk*, it seems to be interesting to investigate about *sukuk* and economic growth quantitatively. This study will contribute to the body of knowledge in such a way that *sukuk* have an important role in Islamic capital market particularly in the secondary market and gives the effect on the economic growth. The increasing demand for *sukuk* to be supported with supply so that Islamic instrument in Islamic capital market effectively. Thus, the efficiency in Islamic capital market can contribute to economic growth.

Furthermore, the output of this study can contribute a thought to reference sources and useful materials that can contribute a thought to others researchers in the framework of development who want to write about *sukuk.*

## 1.6 Limitation and Scope of the Study

Although the number of published research concerning on the *sukuk* increase continuously in form of articles, book, magazines, market reports and conferences paper. However, the available research regarding to *sukuk* is relatively rare. More precisely, the concentration of analysis for qualitative and descriptive research are focused on the form of market reports, popular magazines and blog. The limitation of this study is concerning the presentation of the data publication of *sukuk* which is only available start from 2000 until 2015. It is difficult to find the full data which below of the year 2010. Moreover, restricted of published research about the relationship between *sukuk* and economic growth are directly become another limitation on this study.

Furthermore, this study conducted to investigates the relationship between *sukuk* and macroeconomic variables. There are two models to be applied in this study. The first model GDP per capita as dependent variable while *Sukuk*, Population and Foreign Direct Investment as independent variables. For the second model, *Sukuk* as dependent variable while GDP per capita, Population and Foreign Direct Investment as independent variables. In addition, the observation country of this study consists of Malaysia, Indonesia, United Arab Emirate, Saudi Arabia, Turkey, Bahrain and Sudan for the year from 2000 until 2015.

## 1.7 Structure of the Research

In general, the framework of this research consists of five chapter as follow; Introduction, Literature Review, Research Methodology, Research Findings and Recommendation and Conclusion.

The purpose of the first chapter is to provides the problem area of research as a contribution to the study. The second chapter discussing previous litterature review as the strong foundation of the study which is containing reviews or summary from previous studies related to the tittle. The third chapter describes the method employed and theoretical framework. The fourth chapter presents the analysis and result of this study. The fifth chapter provides conclusion and recommendation as result from the finding of this study and in line with the previous literature review. In addition, the implications of the result of study and opportunity for future research is also discussed.

## 1.8 Concluding Remarks

Basically, this chapter clearly discussed the fundamental and the main purpose of this study which is consists of the overview of world *sukuk* market, problem statement, research question, research objective, significant or contribution of the study, limitation of the study, scope of the study and structure of the research.

# CHAPTER 2

# LITERATURE REVIEW

## 2.0 Introduction

This chapter is focusing on the discussion from previous literature. Basically, there are five sections that covered under this chapter. There are about the definition and concept of *sukuk*, structure of *sukuk*, theoretical review, previous empirical work and the difference between *sukuk* and conventional bond.

## 2.1 Definition and Concept of *Sukuk*

*Sukuk* is one of the most popular securities in Islamic financial system, particularly in the secondary market. Literally, the word of *sukuk* is derived from the Arabic word (plural of sakk) or securities, certificate or bonds that are based on the *shariah* principles. The Islamic Financial Services Board (IFSB) characterized *sukuk* as certificates that represent the holder's proportionate possession in an undivided part of an underlying asset where the holder expect all right and commitments to such asset.

According to IIFM *Sukuk* Report (2016), *sukuk* clearly plays a role in the capital market as a key which is used by an issuer to ranging from the financial institution, corporate, sovereign and quasi-sovereign for the purpose of project financing, infrastructure and etc. *Sukuk* also can be defined as Islamic bond, Islamic securities or papers of the financial obligation arising from trade and other commercial activities. However, Islamic bonds are not completed explain the essence of *sukuk. Sukuk* knew as alternative instruments which the same objective of offering long-term investment as bond (Shah & Shah, 2014). *Sukuk* also has a maturity date

and the holders have the right to earn income regularly over the life of *sukuk*, along with the payment at the maturity date.

In practice, *sukuk* in the form of asset-based or asset-backed. The holders of *sukuk* have the benefit of the ownership of the assets to a Special Purpose Vehicle (SPV). The value of underlying is covered by the value of capital assets, but returns to the holders of *sukuk* are not provided directly from the assets. In other words, it can be interpret as not the actual sales. Furthermore, warranty or investment guarantee is not given by *sukuk*. Thus, *sukuk* holders have underlying asset through Special Purpose Vehicle (SPV) without any guarantee of payment to investors (Wilson, 2004)

In addition, the fundamental of *sukuk* structure based on three parties. The first is the originator of *sukuk* (the obligor), the second is an independent body which has the certificate of legality to acquire an asset and issued a certificate of *sukuk* (SPV), and the third is the investor who will buy the *sukuk* (Ben, 2014).



## 2.2 The Distinguishing Between Conventional Bond and *Sukuk*

Basically, the principle of *sukuk* similar to the conventional bond with the differences among others in the form of the use of the concept of rewards and profit sharing in lieu of interest, the existence of a transaction that is supporting a number of specific assets that became the basis for the issuance of *sukuk* and the presence of the *aqad* or mutual agreement between the parties involved. In addition, the *sukuk* should also in the structure of the *shariah* in order this financial instrument is safe and free from *riba, maysir* and *gharar*.

Although it looks similar, but in the principle *sukuk* extremely different to the conventional bond. The conventional bond is the proof of possession of the bonds

which the owner is entitled to receive payments of interest or coupons each period. However, *Sukuk* is the proof of ownership of an asset that the owner is entitled to receive a share of the benefits of the assets given to the issuer of *sukuk* which is cannot be determined or specified (Ariff et al, 2013).

Furthermore, the fundamental difference between these instruments are in the legality and scope of the market player. Based on legality, *sukuk* is *shariah* compliance product where a loan contract is free for interest due to any additional contractual benefit to the lender is considered as *riba* and prohibited in *shariah.* Therefore, *sukuk* unlike conventional bonds where the investment instrument is permissible in *shariah* while the conventional bond is prohibited.

Based on the scope of the player, in the Islamic market player only allow *sukuk* while in the conventional player both of this instruments are available and permissible as investment instruments (Nienhaus & Karatas, 2016). Furthermore, the trading location of conventional bond more extensive when compared to the *sukuk* that is in the primary market and the secondary market. However, this cannot be made a difference because of the conventional bond also traded in the secondary as a trading place for *sukuk*. so the difference could not be coming from the trading places (Nayan & Kadir, 2014). For more details, the distinguishing between conventional bond and *sukuk* are presented in table

Table 2.1 *The Distinguishing Between Conventional Bond and Sukuk*

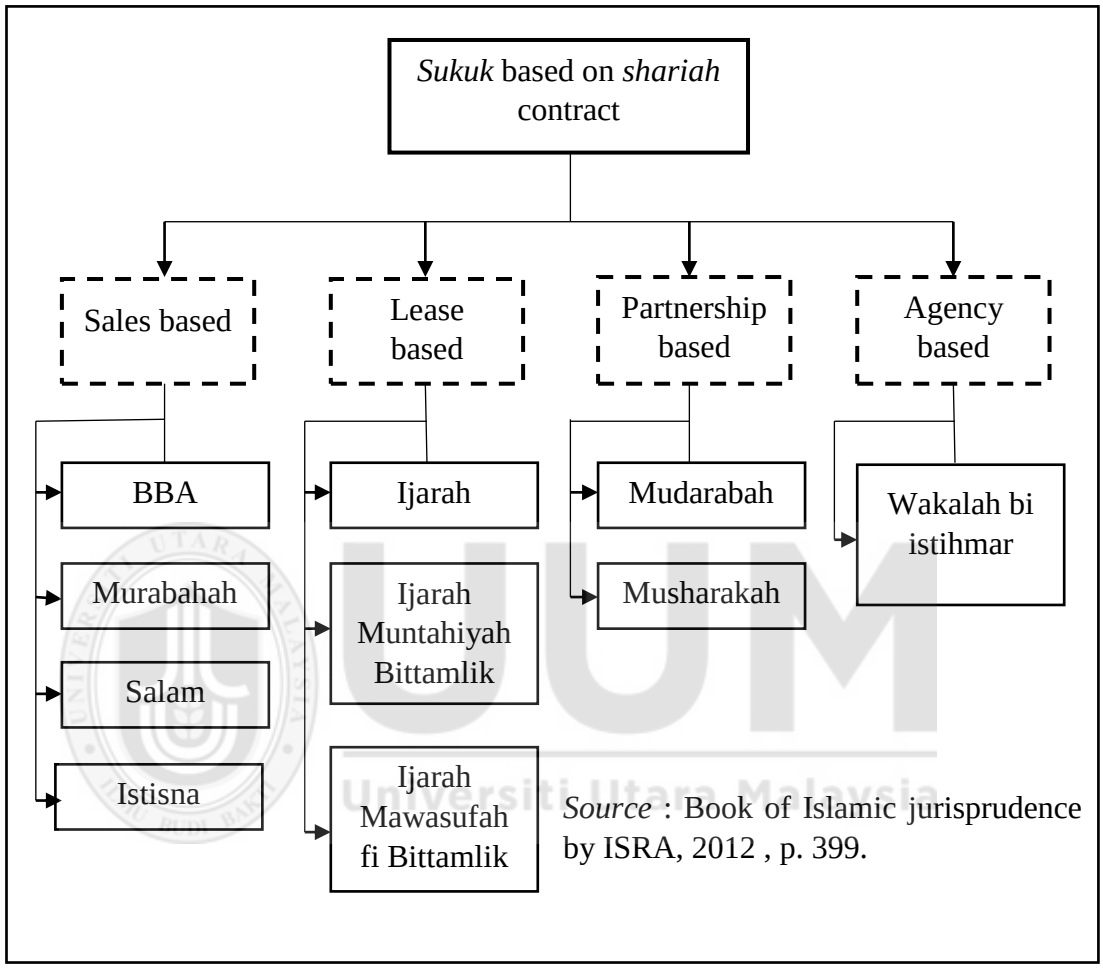
| | **Conventional bonds** | ***Sukuk*** |
|---|---|---|
| Ownership of assets | Bond's did not give share of the ownership to the investor in the project, business, asset, or joint venture | *Sukuk* gives some of the ownership to the investor against the number of its assets |
| Investment criteria | Bond can be used to finance any project, business, asset, or joint venture | *Sukuk* are used for financing based on *shariah* principles |
| Unit | Each bond represents an obligation | Each *sukuk* represents part of the underlying asset |
| Price | Issuer's credit worthiness to determine the face value of bond price | Market value of underlying asset to determine the face value of *sukuk* |
| Investment rewards and risks | Bondholder gets frequently scheduled Interest installment, and principal is the guaranteed to be returned at maturity date | *Sukuk* holder receives the share of profit based on the underlying asset which is cannot be determined or specified |

## 2.3 Structure of *Sukuk*

The classification of common *sukuk* is based on *shariah* contract, that including *Bai Bithaman Ajil*, *Salam, Istisna, Ijarah, Musharakah, Mudarabah and Wakalah* (Figure 2.0). However, the classification of *sukuk* should not be associated with the type of contract. The type of *sukuk* can be also considered based on the

types of the issuer such as sovereign, corporate, exchangeable/convertible sukuk subordinated *sukuk*, asset backed *sukuk*, stapled *sukuk* and project finance *sukuk*.

Figure 2.1 *The Classification of Sukuk based on shariah Contract*



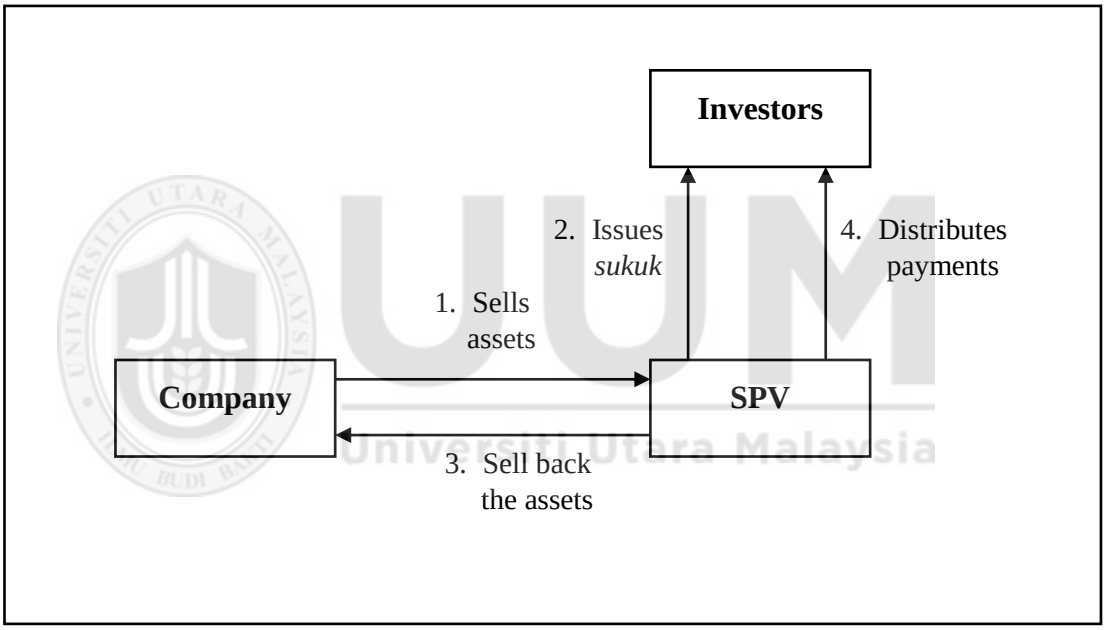

*Source* : Book of Islamic jurisprudence by ISRA, 2012 , p. 399.

### 2.3.1 *Murabahah Sukuk*

*Murabahah sukuk* is an issuance of security under the agreement of contract *murabahah*. *Murabahah* contract is sale and purchase contract where the price of an item and profit (profit margin) is approved by all parties involved. The payment can be made in cash or credit while the delivery of the goods is carried out at the beginning at the time he/she committed the transaction. *Murabahah* contract also known as cost plus financing scheme.

Furthermore, if the company intends to use *murabahah sukuk*. The company should sells one or more of its assets to the SPV to get cash. SPV will issues *sukuk* to obtain funds from investor to buy the asset of the company. After all, the SPV will sell back the asset to the company at a mark-up for the deferred price. In addition, the company make the payment periodically to acquire the assets and SPV will distributes to the investors. The structure of *murabahah sukuk* illustrated in figure 2.2.

Figure 2.2 *Murabahah Sukuk Transaction Structure*

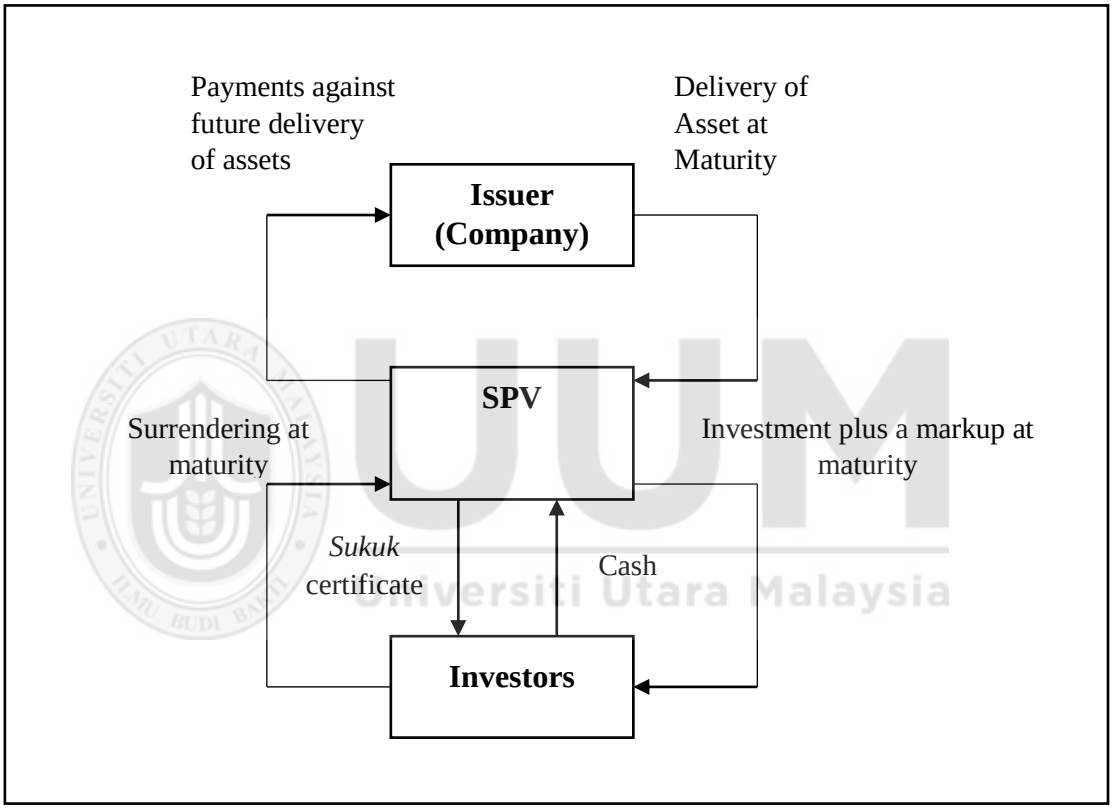



### 2.3.2 *Salam sukuk*

*Salam sukuk* or *salam* certificate defined as the same value which is issued in order to provide capital for *salam*, so the goods to be delivered by contract *salam* belonged to *sukuk* holder. In salam contract, the number of items and criteria has been clearly defined with payment made in advance while the goods are delivered later at a mutually agreed time.

Furthermore, In *salam* contract, the holder of *sukuk* (capital owner) sells a commodity at a pre-negotiation price. The capital owner will gain profit from the difference between the amount of money paid in advance with the market price of commodities at the time of maturity. The structure of *salam sukuk* illustrated in figure 2.3.

Figure 2.3 *Salam Sukuk Transaction Structure*



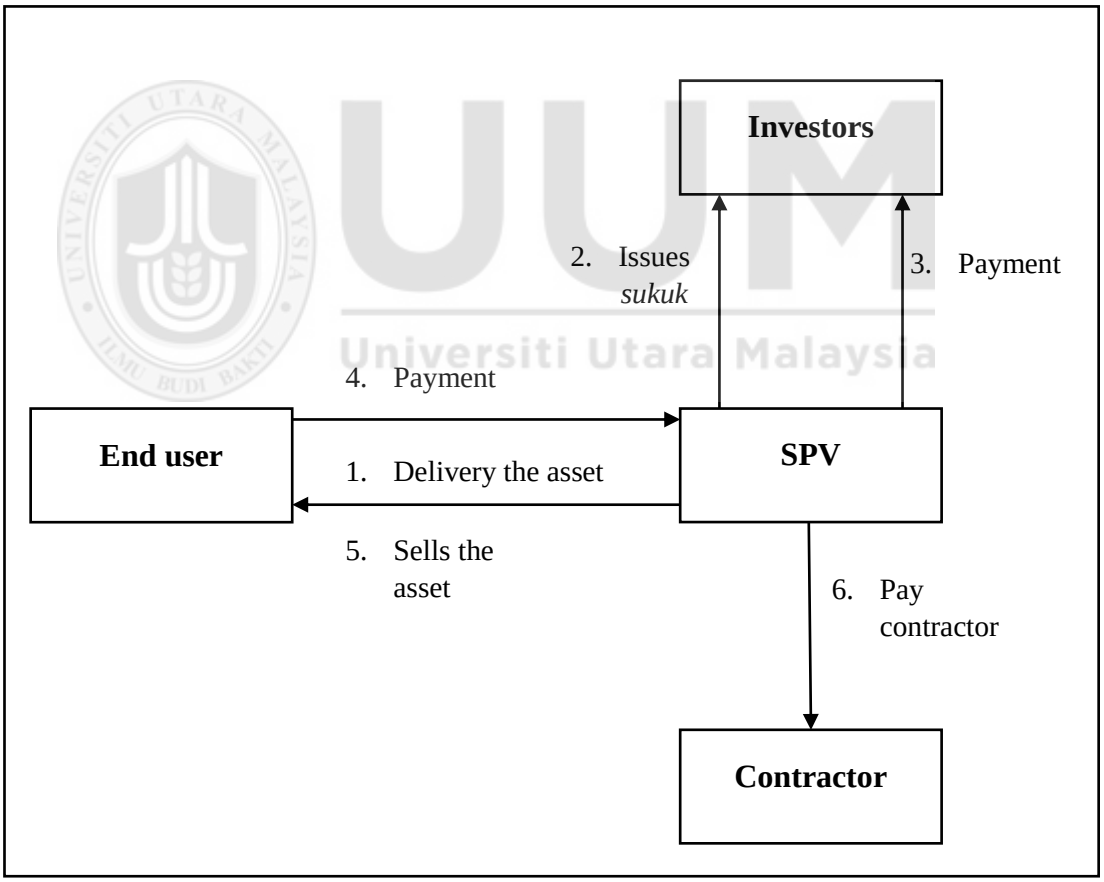

### 2.3.3 *Istisna Sukuk*

*Istisna sukuk* is an issuance of security under the agreement of contract *istisna,* whereby the parties agree to the sale in order to finance a project or item. As for the price, time for delivery and specifications of project or goods determined in advance based on the agreement. *Istisna sukuk* has been long used for the procurement of construction and manufacturing projects. In the process, the buyer

will entrust to order manufacturing or construction to the seller which the delivery of it in the future.

Furthermore, the issuer or SPV will issues *sukuk* to obtain fund from investors. Then SPV will use the result of *sukuk* to pay the seller/ contractor/ manufacturer under *istisna* contract, such as for building or delivery the project. SPV will sell the asset to the end user using the same contract and the payment will be distribute periodically to SPV. In addition, SPV also will distribute the payment to investors. The structure of

Figure 2.4 *Istisna Sukuk Transaction Structure*





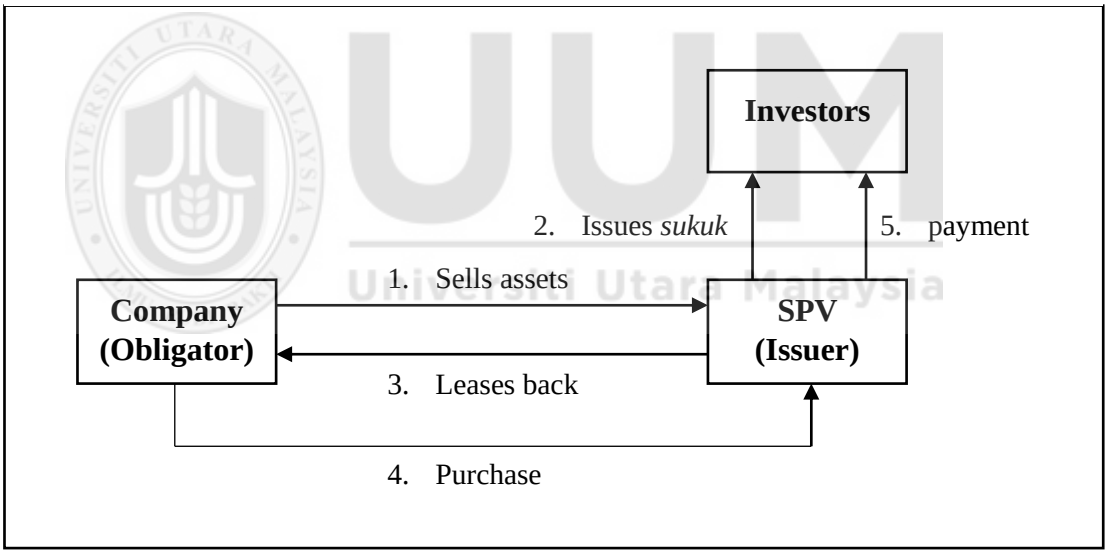

### 2.3.4 *Ijarah Sukuk*

The basic of *ijarah sukuk* is the issuance of securities which are the basis of the transaction is a lease of tangible or intangible property between the issuer and

obligor. As seen from AAOIFI standard, *ijarah sukuk* has a relationship with a concept of forward leasing, leasing service, and timeshare.

Furthermore, if the company intends to use *ijarah sukuk*, the company (obligor) sells its assets to SPV for issuing *ijarah sukuk*. SPV issues *sukuk* to raise fund from investor to buy the asset. After buying the assets, SPV leases it back to the company. For the payment, company conduct periodic as rental payment and than SPV distribute it to the investor. At the time of maturity, the SPV sell back those assets and ensure redemption of *sukuk*.. The structure of *ijarah sukuk* is illustrated in figure 2.5.

Figure 2.5 *Ijarah Sukuk Transaction Structure*



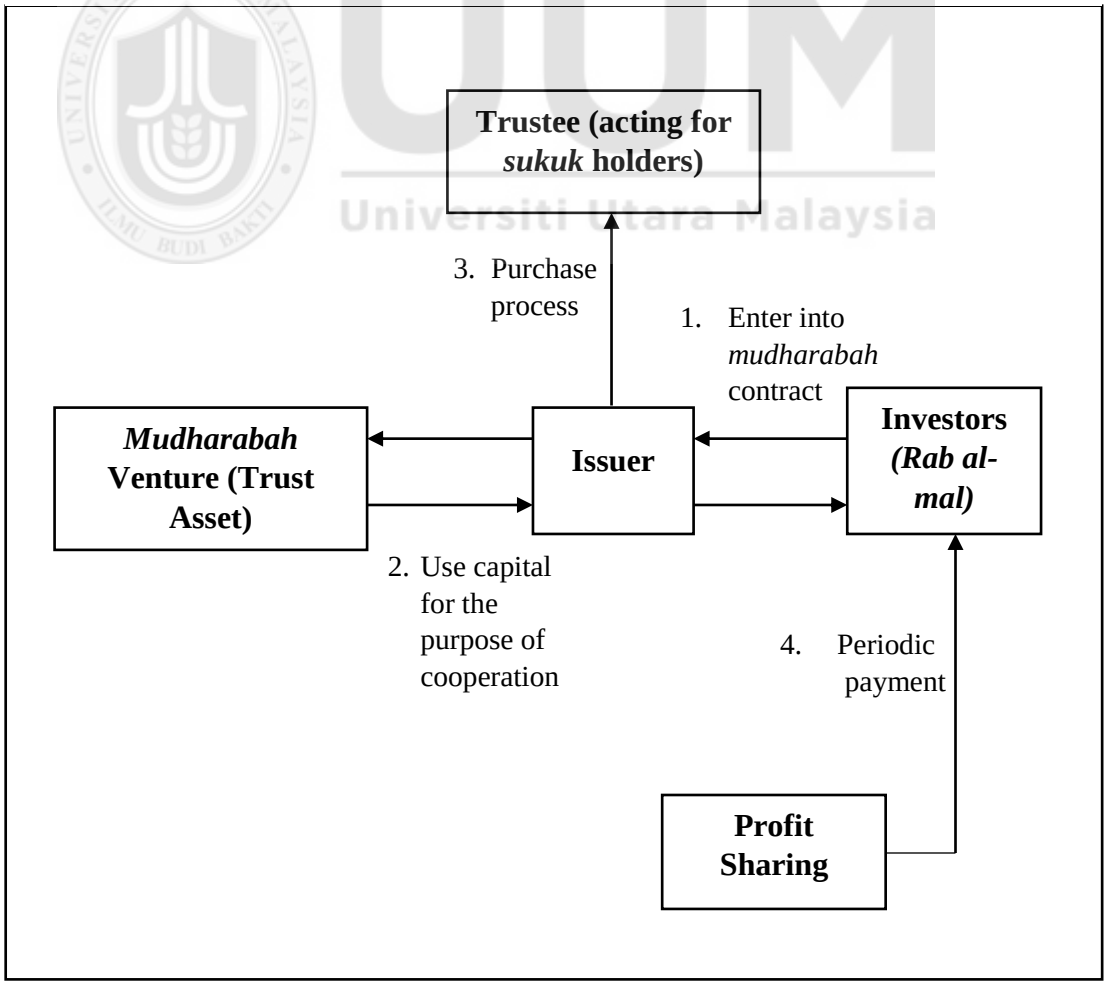

### 2.3.5 *Mudharabah sukuk*

*Mudharabah sukuk* is an issuance of securities under the agreement of contract *mudharabah*, whereby one party provides capital *(Rab al-mal/Shahibul maal)* and other parties provide labor or expertise *(Mudharib).* The benefit of such corporation will be divided based on the proportion of comparison that was agreed

upon before. Losses incurred will be borne entirely by the capital provider, as long as the loss not caused by the negligence or not good intentions of *mudharib*.

Furthermore, the main essence in *mudharabah* contract is the fiduciary relationship where an investor (*Rab al-mal*) makes a deal with the issuer (*Mudharib*) to invest in business cooperation based on *shariah* compliant, then issuer will use the capital for the purpose of business. The issuer will also grant a purchase undertaking to the trustee whereby the issuer will acquire the *sukuk* upon maturity or dissolution event. In addition, income from *mudharabah* will be distributed periodically in accordance with the agreement. The structure of *mudharabah sukuk* is illustrated in figure 2.6.

Figure 2.6 *Mudharabah Sukuk Transaction Structure*

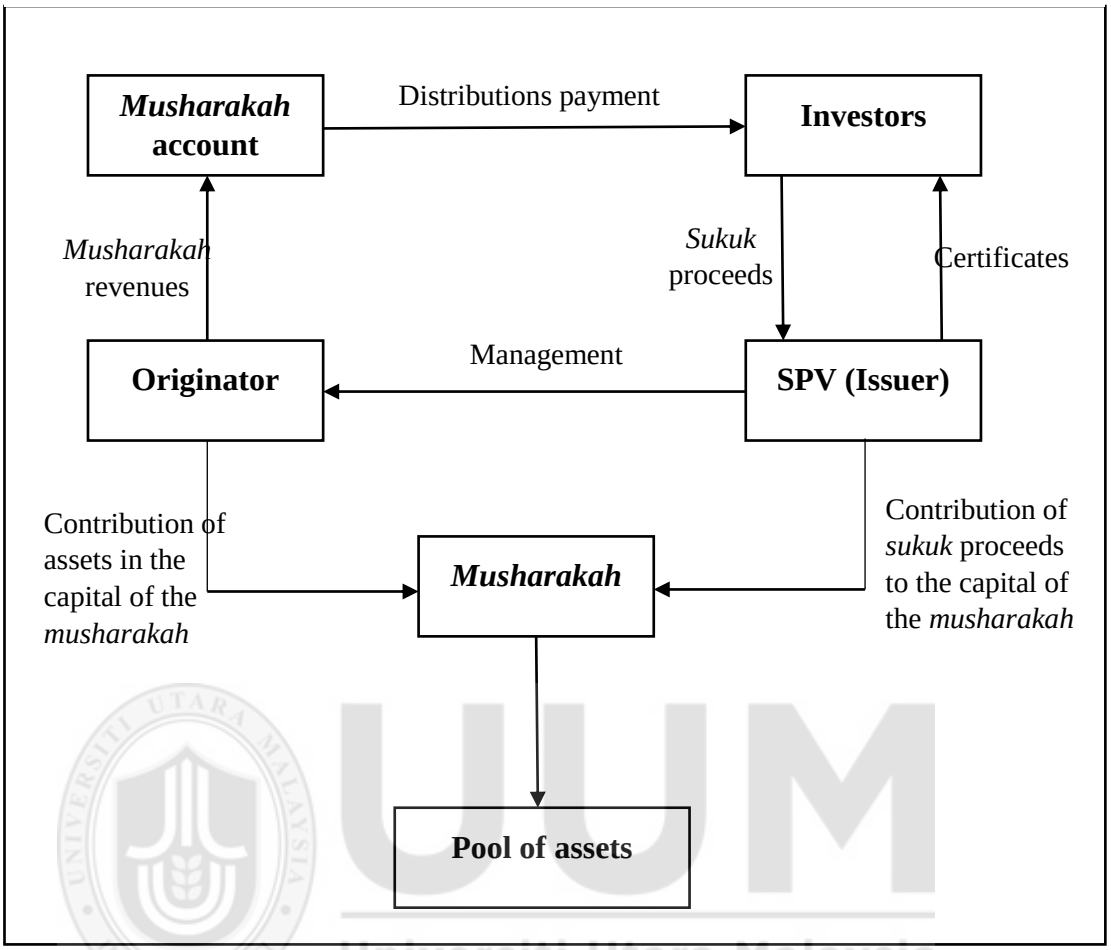


### 2.3.6 *Musharakah sukuk*

*Musharakah sukuk* is an issuance of securities under the agreement of contract *musharakah*, whereby two or more parties in collaboration combines the capital to built new projects, develop an existing project, or finance their business activities. Gains or losses arising are shared in accordance with the amount of capital participation of each party.

Furthermore, before publishing the *musharakah sukuk*, the company should make a special purpose vehicle (SPV) as an intermediary to issue *sukuk* for investors that will provide funds for the financing of the project. *Musharakah* is a form of partnership or joint venture, thus partners will determine how many units of each partner. The profit will be shared based on the amounts of the percentage that have been determined. Moreover, related to the sharing of profits, the investors would only get the benefit based on the level of *sukuk* profit rather than revenue. In case if the profit exceeds the level of *sukuk* profit, then investors will get profit rate. However, if the profit less than the level of *sukuk* profit, then the organization will ask to purchase some of the units of investors in its projects. In addition, at the time of maturity, the company will ask to buy back the unit. The structure of *musharakah sukuk* is illustrated in figure 2.7.

Figure 2.7 *Musharakah Sukuk Transaction Structure*

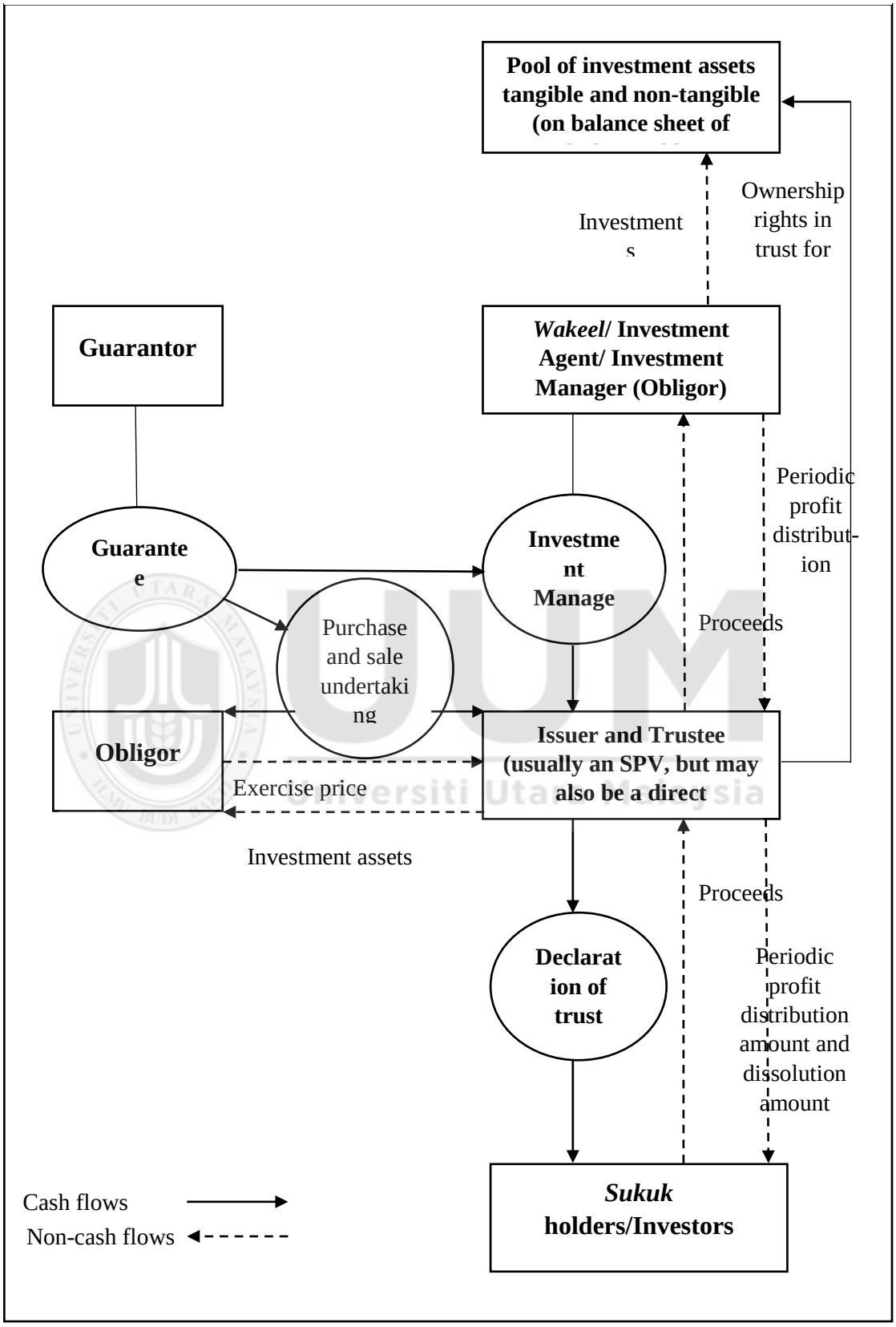





### 2.3.7 *Wakalah sukuk*

*Wakalah sukuk* is trust certificate that issued by a party in order to acquire capital or invest in *shariah*-compliant assets, goods, or services. Under a *wakalah sukuk* arrangement, parties who invested his money referred to as *sukuk* holder. The obligor is a party that need the money and the investment agent *(wakeel)* is a party who manages the asset of the *sukuk*. Usually, investment agent also serves as the obligor. Furthermore, The issuer of *wakalah sukuk* is a Special Purpose Vehicle (SPV). The issuer will also act as deputy mandate on behalf of the *sukuk* holders by holding the ownership and managing assets on the basis of trust on behalf of the *sukuk* holders. The structure of *wakalah sukuk* illustrated in figure 2.8.

Figure 2.8 *Wakalah Sukuk Transaction Structure*



## 2.4 Theoretical Review

### 2.4.1 The Harrod-Domar Model of Economic Growth

This theory was developed by R.F. Harrod (1939) and Evsey Domar (1947). Basically, the model of this theory is built based on the experience of modern development country and based on the capitalist economy (Todaro, 2006). Although the theories were developed separately, but both of them have the same conclusion that economic growth is determined by the high level of saving and investment. If there is a high level of saving in a country, it provides funds for the firms to do the borrowing and investing activities. Investment can increase the capital stock of an economy and generate economic growth through the increase in production of goods and services. However, if the level of saving and investment is low, then the economic growth of the country also will be low.

Domar built his theory by emphasizing the dual role that played by investment in the process of economic growth. He stated that investment would affect an aggregate demand through the multiplier investment process and in the long-term period, the process of accumulation of capital would be involved in order to add the stock capital and increase the production capacity, so that investment also affect the aggregate to supply.

Furthermore, based on Harrod, the economic growth can be distinguished that consists of actual growth rate, desired growth and natural growth. The economy would be in balance position if the actual rate of growth is equal to the growth rate which ensures the full capacity, namely the long-term equilibrium growth rate. However, Harrod stated that the equilibrium condition is very rare which mean that the economic growth process contains the elements of instability that can disturb the equilibrium state. In addition, the stability of economic growth in the long-term

period can only be achieved through the government intervention by way of fiscal and monetary policy to cope any disruption and instability irregularities. Both of these policies contribute to the raised of investment in infrastructure sector that will increase the aggregate demand for the short-term period and expand the production capacity to ensure the sustainability of the economic growth process in the long-term period.

### 2.4.2 Rostow's stages of growth

The theory of economic growth by Rostow was originally an article which published in Economic Journal (March 1956) and later developed further in his book entitled The Stages in Economic Growth" (1960). Walt Whitman Rostow (1960) was an economist that derives from America who conceived the idea that there are five stages in the growth of the economy growth, namely:

1. Traditional Society; It is defined as the society that has limited function of production.
2. Preconditions for take-off; It is defined as a transition period in which the community prepares itself to achieve growth over the strength of its own (self-sustained growth)
3. Take-off; it is defined as the increase of investment level in society that will drive increase the real income per capita. In this stage, there is a drastic change in society as a political revolution, the creation of the rapid progress in innovation, or the form of the opening of new markets. As a result of this changes, it will create innovation and increase the investment.
4. Drive to maturity; at this stage, the community has already effectively used modern technology in almost all production activities.

5. Age of high mass consumption; at this stage, the society attention more emphasis on issues related to the consumption and welfare of the people.

On the take-off stage, Rostow argued that economic growth has always been the case. As for one of the traits of countries that take-off is characterized by the increase of investment, the development of the industrial sector and the creation of a basic framework social and institutional politics. The level of investment is the key process of the economic growth. Moreover, Rostow was aware that population and technical innovation is an important factor in theory economy (Smith). Even though the population has a role in economic theory, but the high level of investment in the country shall exceed the number of population. Thus, it will accelerate the growth of national income, so the GDP per Capita income level will be increasingly large.

### 2.4.3 *Sukuk*

The development of *sukuk* market very quickly over the last three decades. Thomson Routers Zawya (2015) ensure that *sukuk* becoming important financial instrument in Islamic capital markets and also may serve as an alternative tool of an effective and efficient as a source of funding in international capital market. as seen in the fact, the activity of *sukuk* market has close ties to economic global and financial sector (Global *Sukuk* Report, 2015).

Historically, the beginning of academic research on *sukuk* is derived from conference paper in 1990. Up to now, the continuation of the research on *sukuk* more qualitative or descriptive rather than the quantitative method such as the market report, articles, magazines and conference paper (Siswantoro, 2008).

The researchers who examined this area still rare due to the limitation of the availability of data *sukuk*. *Sukuk* is an instrument which traded in the secondary

market, particularly Over Trade Countre (OTC). Therefore, the level of accuracy and reliable data presented is uncertain. Furthermore, the presence of disapproval to the concept of *sukuk* among *shariah* scholars and the lack of standards of Islamic finance is also the reason why research of *sukuk* is less developed (Zulkhibri, 2015).

A study conducted by Ahmad et al (2015) explained that one of the factors that can encourage the growth of *sukuk* which the experts should focus on how to solve the existing problem in *sukuk* and how to reduce the risk of *sukuk* during times of difficulty such as financial crisis. Despite the risk posed by *sukuk* in the crisis is not comparable to the conventional, but *sukuk* still able to survive. For examples cases in The UK during the global financial crisis in 2008 that the government still decided to issue sovereign *sukuk* (Weddenburn-Day, 2008).

### 2.4.4 Gross Domestic Product

The purpose of the country to improve its economic development is to increase the standard living of the country. According to Goldsmith (1969) argues that the existence of the important relationship between financial development and economic growth, which means that a country who has the underdeveloped financial system will affect on economic growth. It is also in line with research conducted by (Badeeb & Lean, 2014) where there is a positive relationship between financial development and economic growth which is measured through GDP per capita.

The presence of Islamic financial market is also undeniable contribute to economic growth. As an example of the previous case study in Tunisia that the relationship between the Islamic bank and *sukuk* market expected can drive the economic growth in Tunisia with the aim to reduce the poverty level and unemployment (Ben, 2014). Furthermore, the research conducted by (Shafi &

Redzuan, 2010) shows that the existence of the role of *sukuk* on the development of the agricultural sector. He expresses that the presence of *mudharabah sukuk* can assist the provision of capital to the agricultural sector in Indonesia and gradually help to reduce the level of poverty. This is also in line with the results of other studies where *sukuk* based profit sharing give better results compared to the fully paid arrangement to the agricultural sector in Yogyakarta (Soelaiman & Lestari, 2014).

According to Beik & Hafidhuddin (2008), Although the presence of *sukuk* in agricultural sector only give a little contribution to GDP, *Sukuk ijarah* can contributes to the development of the agricultural sector in Indonesia. However, the government's commitment is required in order to facilitate the integration process between the Islamic capital market and agricultural sector. Another opinion also has been revealed by Sole (2008), a case study in Kuwait shows that the government support is needed in the process of development of corporate bond and *sukuk* market.



### 2.4.5 Population

The population is one of the factors that influence the growth of regional economies. The growth of population usually has a negative relationship to the growth of GDP (Pancawati, 2000). There are two dominant paradigms assessing the impact of population on the economic, namely Malthusian and Boserupian respectively. In paradigm, Malthusian tends to be more pessimistic. If the population grows larger than technological changes, then societies cannot reach the level of revenue (Malthus, 1798). However, the optimistic view in the paradigm of Boserupian. The high level of population can induce the technological changes (Boserup, 1965).

Previously, the study was conducted by Huang & Xie (2013) identify the causality relationship between population growth and economic growth. The results showed that the causality relationship between population growth and economic growth are failed to identify.

The presence of *sukuk* as an alternative instrument for financing and investment in the financial market bring a big potential for Muslim or non-Muslim population in emerging and developing countries (Ascarya & Yumanita, 2008). According to (Jobst, 2008), both in Muslim and non-Muslim populations such as in UK, Japan, Thailand and Indonesia the popularity sovereign *sukuk* exceeding governments. Furthermore, Study conducted by (Soelaeman & Lestari, 2014) show that the growth of population is very influential on the development of agricultural sector in Yogyakarta. A large number of the population who use *sukuk* based on profit sharing encourages the development of agricultural sector.

### 2.4.6 Foreign Direct Investment

The number of researchers who discuss the relationship between FDI and *sukuk* were still very limited. However, many researchers study about the relationship between FDI and economic growth empirically. They have studied not only one country, but also about the regions and continents. According to Boreinsztein & Lee (1998), the contribution of FDI to the economic growth must be stimulated by technological advanced, rather than increasing the capital of host country. Agrawal & Khan (2011) added that the involvement of management, joint venture and expertise also needed to support FDI into a country. On the other hand, the existence of the positive impact of FDI on the economic growth will encourage the development and growth of the market. Thus, it will incur dependence to the FDI (Li & Liu, 2005). In addition, FDI also provides benefits towards macroeconomic

variables such as exports, employment and saving which will contribute to the economic growth (Boon, 2001).

### 2.4.7 Global Financial Crisis

As mentioned in UNCTAD report (2009) that the financial crisis entered a phase of highly dangerous. It begins with the fluctuations in the stock market which substantially reduce the economic growth. It is also led to a declining in industrial production, international trade flows, unemployment and a decline in income is accompanied by the supply.

According to Namara (2011) that the global *sukuk* market has seen the substantial consolidation in 1998, which is when the global financial crisis and credit crunch happen. The total of global *sukuk* issuance decline in 2008. This is due to the extensive nature of the financial crisis that led many investors to shy away from investing. Furthermore, a study conducted by Maimunah (2011) stated that *sukuk* market cannot spared from the effect of global financial crisis. It means that there is a link between financial crisis and *sukuk* issuance.



## 2.5 Previous Empirical Work

There are a few number of researchers focusing on the study of *sukuk* and economic growth quantitatively. Prior research conducted by Grassa and Gazdar (2014) study the impact of financial development on the economic growth for five GCC countries which is consist of Bahrain, Kuwait, Qatar, Saudi Arabia and UAE for the time period from 1996 until 2011. By using GLS and OLS methods, the result shows that *sukuk* market does not contribute to the economic growth in GCC countries. However, the indicator for Islamic financial development has significant and positive impact on the economic growth.

According to Ahmad et al (2012), studies regarding to the influence of macroeconomic factors such as GDP, PPI and CPI on the *sukuk* issuance. The result of their study by using VARs model showed that *sukuk* granger cause GDP and GDP granger both PPI and CPI. The same study also demonstrated by Rani (2012). By using VECM for the period time 2006 until 2010 showed that the issuance of *sukuk* in Indonesia affected by the macroeconomic indicators, namely GDP, unemployment, inflation and bonus SBIS in the long term. Other than that, the study by using VAR model shows GDP has a dominant effect to the corporate *sukuk* issuance in Indonesia, either in the long or short term. However, other macroeconomics variables such as inflation and currency exchange only affect in the long term to the corporate *sukuk* issuance (Selvianty, 2015). The results of this study are also in line to Widianti (2015) where inflation and money supply only slightly effect to the growth of corporate *sukuk* in Indonesia.

Another study examined the factors that influences the development of *sukuk* market, such as (i) economic and economic factors, (ii) financial system, (iii) global financial crisis, (iv) institutional environment, (v) region and society, and (vi) legal origin in 10 selected countries such as Bahrain, Brunei, Gambia, Indonesia, Kuwait, Malaysia, Pakistan, Qatar, Saudi Arabia and UAE. The outcome showed that economic growth is measured by GDP has a positive influence on the development of *sukuk* market and population does not contribute to the development of *sukuk* market. However, Muslim religion has a significant relationship to the development of *sukuk* market (Grassa & Said, 2013).

Furthermore, Nayan and Kadir (2014), presented evidence of the relationship between *sukuk* and economic growth by using Generalized Method of Moments (GMM) and POLS methods. The use of real GDP per capita is estimated against

*sukuk*, consumer price index, population, and inflation for 10 selected countries namely Malaysia, Indonesia, Bahrain, Qatar, Pakistan, Brunei, Singapore, Saudia Arabia, UAE and Sudan. The findings revealed that consumer price index, population and inflation are significant in determining an economic growth and *sukuk* fundamentally influences and contributes to the economic growth. However, others study on the relationship between *sukuk*/conventional bond issuance against GDP show that there is a negative and significant relationship between dependent and independent variables (Elkarim, 2012).

## 2.6 Concluding Remarks

In short, this chapter provided the definition and concept of *sukuk*, the structure of *sukuk* and the existing of literature that discusses in depth about the previous research studies. This section is discussing based on the keywords that relate to the studies which are about the relationship between *sukuk* and macroeconomic variables.

# CHAPTER 3

# RESEARCH METHODOLOGY

## 3.0 Introduction

This chapter focused to answer research objectives as mentioned in chapter 1 by providing the theoretical framework, hypothesis statement, econometric model and describe methods for examining the determinants of economic growth. This research will employ a method by using panel data that involved samples from seven selected countries such as Malaysia, Indonesia, United Arab Emirates, Saudi Arabia, Turkey, Bahrain and Sudan.

## 3.1 The Harrod-Domar Model of Economic Growth

This theory analyses the requirements needed by a country in order to achieve steady growth. According to this theory, the investment has a crucial role in any economic growth of the country. Firstly, it has an important role in creating income which means that investment affect the demand side and secondly, it can enlarge the production capacity of the economy by increasing the stock of capital. So, it means that investment would affect the supply side (Afifuddin & Pratomo, 2012).

Furthermore, in the long-term, the investment not only able to meet the aggregative demand, but also able to affect the aggregate supply through changes in production capacity. In addition, the capital-output ratio is using to measure the productivity of investments. If the capital-output ratio declining, an economy will be more productive. So that, the amount of output produced is greater than input and this lead to the higher of economic growth.

## 3.2 Data Collection and Description for Panel Data

Data collection for this study is based on the secondary data that obtained from World Development Indicator (World Bank, 2016), Zawya *Sukuk* Database, IIFM *Sukuk* Report, Securities Commission (SC) and Otoritas Jasa Keuangan (OJK). The data used in this study involves sixty-eight unbalanced panel data in seven different countries that issued the *sukuk*. Panel data or pooled data is referred as longitudinal data or cross-sectional time-series. The classification of panel data can be into two parts, namely balanced panel data and unbalance panel data. Balance panel data is a condition in which the unit of cross-sectional observation time-series has the same. While unbalance panel data is referred to the condition in which the unit of cross-sectional has different numbers of time-series observation.

According to Gujarati (2008), there are several advantages of using panel data for research such as increasing the sample size that suitable for studies the dynamic changes and it might be allowed the researchers to study the complex behavior. The following table describes the data collection of the study (Table 3.1)



Table 3.1 *Data Descriptions*

| No | Variable | Definition of Variables | Source of Data |
|---|---|---|---|
| 1 | GDP | GDP per Capita Income (By year in USD) | World Bank, 2016 |
| 2 | *SUKUK* | *Sukuk* Issuance (Volume in USD) | SC, OJK, Zawya *Sukuk* Database, and IIFM *Sukuk* Report |
| 3 | POP | Total of Population | World Bank, 2016 |
| 4 | FDI | Foreign Direct Investment | World Bank, 2016 |
| 5 | DGFC | Dummy Global Financial Crisis | Dummy Created by the Author |

The total of countries that are registered using *sukuk* is around 18 countries. However, the data used in this study consists of 7 countries due to the limitations of the published data. It constituted that *sukuk* is still a newcomer compared to the conventional bond in the market. The data were taken starting from the year 2000 until 2015 as presents in Table 3.2.

Table 3.2 *Sampling of the Country*

| No | Name of Country | Range of the Year | Total |
|---|---|---|---|
| 1 | Malaysia | 2000-2015 | 16 |
| 2 | Indonesia | 2002-2014 | 13 |
| 3 | Saudi Arabia | 2003-2014 | 12 |
| 4 | United Arab Emirates | 2004-2009 | 6 |
| 5 | Turkey | 2012-2014 | 3 |
| 6 | Bahrain | 2001-2009 | 9 |
| 7 | Sudan | 2001-2009 | 9 |
| **Total** | | | **68** |



## 3.3 Variable Specifications

This study used three models of the theoretical framework. For the first model, independent variables consist of *Sukuk*, Population and FDI while the dependent variable is GDP per Capita. Furthermore, for the second model, independent variables consist of GDP per Capita, population and FDI, while the dependent variable is *sukuk*. On the other hand, the third model consist of Sukuk, Population, FDI as Independent variables while GDP per Capita and Global Financial Crisis as dependent variable and dummy variables respectively.

### 3.3.1 Dependent Variable

This study applied two dependent variables which are GDP per Capita as the first variable for the first and third model and *sukuk* issuance for the second model.

**i. Gross Domestic Product**

Economic growth is one of the development activities that lead to the production of goods and services increased in order to ensure the prosperity of societies. According to Afiffuddin & Pratomo (2012), economic growth is the increase in the long-term capacity of a country to provides a variety of economic goods to the people. There are several factors determined of economic growth such as advancement of technology as well as the increasing of population, institutions and income distribution for the population of each country. In this study, the uses of GDP per Capita (Income) as proxy to the economic growth is to measures whether economic growth contributes to the *sukuk* issuance and other economic variables (Grassa & Gazdar, 2014; Nayan & Kadir, 2014). GDP is the market value of goods and services produced in a country and usually at intervals of one year. It becomes standard in the measurements of the size and healthy for each countries.

**ii. *Sukuk***

*Sukuk* can be referred to a certificate with the same value that represents the ownership of tangible assets, benefits and services, asset ownership over projects or investment activities. *Sukuk* issuance could increase the sources of capital and financing for government and corporate companies (Shafi & Redzuan, 2010). Furthermore, the excess demand for *sukuk* global becomes a prospect signals of *sukuk* as an alternative sources of financing to the domestic financial development, particularly infrastructure development.

The presence of *sukuk* as an alternative instrument for financing can contribute to economic development. In this study, the uses of the total volume of *sukuk* issuance for seven selected countries is to determine whether it has a contribution or not to the macroeconomic variables (Ahmad et al, 2012; Elkarim, 2012; Grassa & Said, 2013).

### 3.3.2 Independent Variables

The next will be explained about independent variables that used in this study which is the economic variables as follow:

#### i. Population

The influence of population growth on economic growth is still being a debate. It is based on the existences of some countries that economic growth is driven by the growth of population such as some countries in Western Europe, Africa, Asia and America Latin where the growth of population encourages the development of this countries. However, unlike the case of developing countries such as Indonesia, India and Bangladesh where the population growth could potentially hinder the growth in the selected countries. In addition, the condition of developing countries is very different from the condition in developed countries. The availability of capital in developing countries is limited and the population is quite abundant. Therefore, the growth of population deemed to be bad for the economy in many ways. This research is used the total number of population for each country (Said & Grassa, 2013). The objective of this study is to tests the relationship between the total population to economic growth and *sukuk*.

### ii. Foreign Direct Investment

According to Salfatore (2007), one of the economic activities can not be released from the international trade activity is the activity of capital flows, either the nature from incoming or outcoming. One of the efforts that can make by the government to attracts the attention of foreign investors who has the aim to infuse capital by Foreign Direct Investment (FDI). FDI is the process of investment made by the foreign investor in a country that can help as sources of financing. Previously, research conducted by Kholis (2013) indicates that FDI does not contribute significantly to the economic growth in Indonesia and the roles of export influence on the economic growth.

### iii. Global Financial Crisis

According to Ahmad & Radzi (2011), the global financial crisis had a negative impact on the global economy and especially in the banking sector and financial sector. The Industry of Islamic financial cannot escape from the fact that the world has experienced major financial problems in decades. However, the presence of *sukuk* as an alternative instrument in Islamic financial sector has managed to withstand shocks caused by the financial crisis (Maimunnah, 2011). The used of global financial crisis as the dummy variable for this study to show the state of crisis that occurred in 1998 and 1999.

## 3.4 Theoretical Framework

The theoretical framework is built based on the combination of ideas and theories that can be used to help the researchers to identify the problems. In other words, it may have the capacity to demonstrates the relationship between dependent variable and independent variables. This research has come out with four independent variables that closely related to dependent variable namely as GDP per

Capita / *Sukuk*, Population, and Foreign Direct Investment (FDI). GDP per Capita / *Sukuk* as the primary variable that researcher will be interested in evaluating and measuring the independent variables. Any changes from independent variables would affect the changes in dependent variable. Based on the previous research by Grassa & Said (2013), an economic variable of GDP per Capita is refers the potential factor that influenced the growth of *sukuk* in the secondary market. For more details, Figure 3.1 and 3.4 illustrated the theoretical framework of this study.

Figure 3.1 *Theoretical Framework (1)*

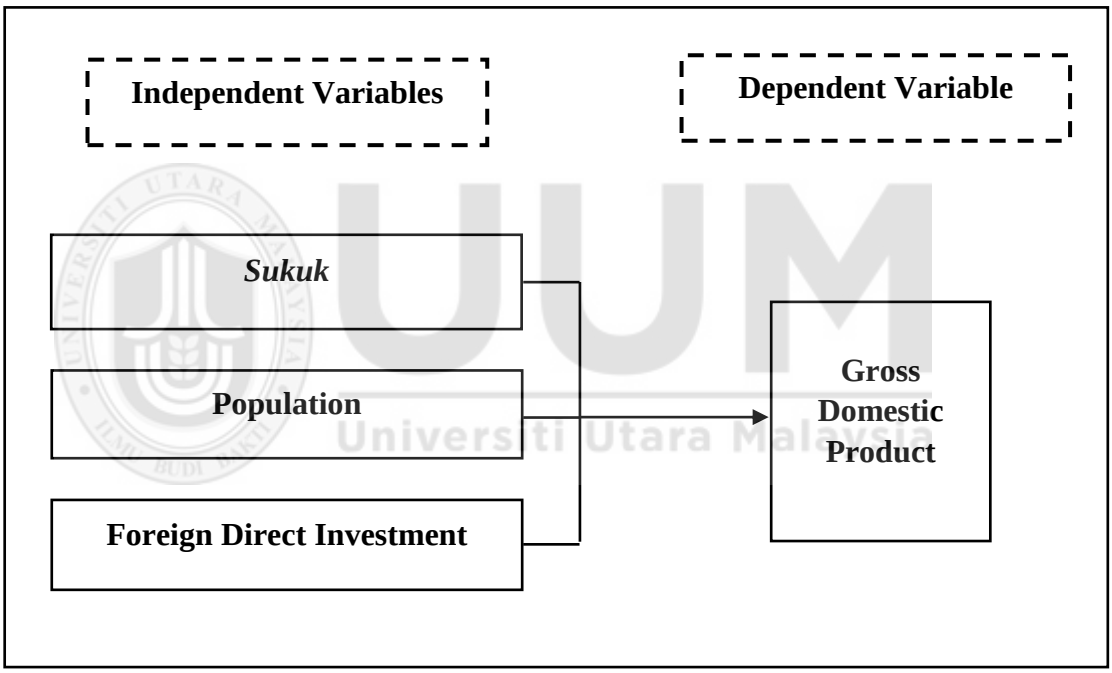


Figure 3.2 *Theoretical Framework (2)*

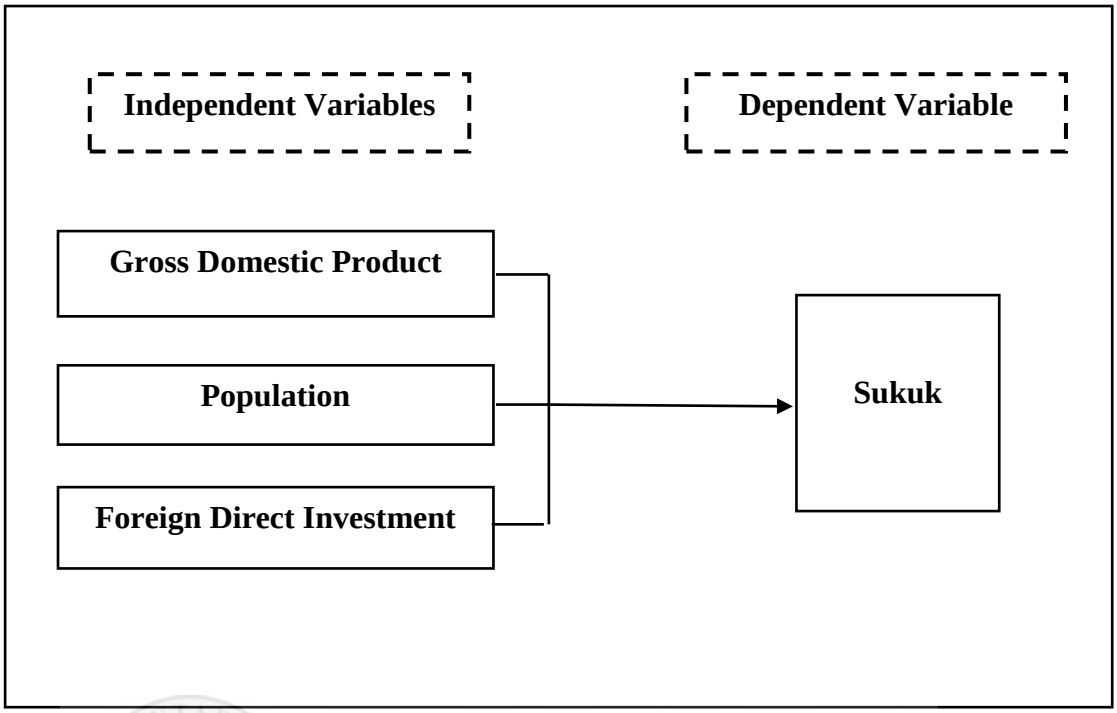
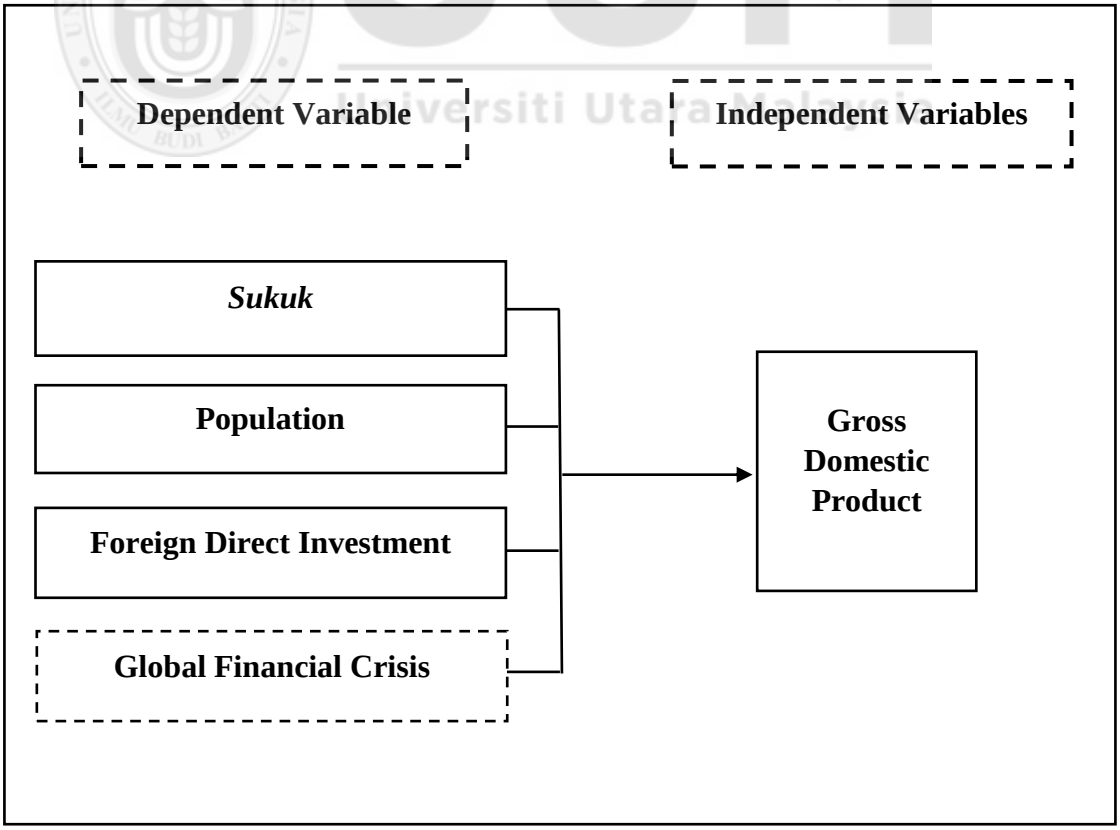



Figure 3.3 *Theoretical Framework (3)*



## 3.5 Hypothesis Development

The hypothesis presented in this study will provide the links between theoretical as well as empirical and research questions, from which research hypothesis are then constructed. There is two hypothesis has been developed which is:

### 3.5.1 *Sukuk* and Economic Growth

According to Nayan & Kadir (2014), *sukuk* fundamentally influences and contributes on the economic growth for 10 selected countries such as Malaysia, Indonesia, Bahrain, Qatar, Pakistan, Brunei, Singapore, Saudia Arabia, UAE, Bahrain and Sudan. Another research in Bahrain, Brunei, Gambia, Indonesia, Kuwait, Malaysia, Pakistan, Qatar, Saudi Arabia and UAE showed that an economic growth is measured by GDP and has a positive influences on the development of *sukuk* market (Grassa & Said, 2013).

Furthermore, *sukuk* market does not contribute to the economic growth in GCC countries. However, the indicator for Islamic financial development has significant and positive impact on the economic growth (Grassa & Gazdar, 2014). Other research on the relationship between *sukuk* / conventional bond issuance against GDP showed that there is the negative and significant relationship between dependent and independent variables (Elkarim, 2012). In addition, the presence of *sukuk* as a credit financing in agricultural sector only give a little contribution to GDP in Indonesia (Hafidhuddin & Beik, 2008). Thus, the relevant hypothesis statement are as follows:

$H_1$ :There is a significant relationship between *sukuk* and economic growth.

### 3.5.2 *Sukuk* and Population

Islam strongly encourages his people to perform economic activities in a way that is right and good and prohibits the hoarding of goods or let the unproductive assets. The emergence of *sukuk* as instruments very useful for population, especially Muslim community. According to Said & Grassa (2013), the level of the population does not show-up a non-critical determinants to the improvement of *sukuk* market. However, the presence of Muslim religion in a country significantly determinants to the improvement of *sukuk* market. Furthermore, the high demand for the world's Muslim population to the *sukuk* makes Islamic financial instruments to be one of the factors that encourages the Islamic Capital Market development (Ahmad & Radzi, 2011). Therefore, this study come out with the following hypothesis statement:

$H_2$:There is a significant relationship between *sukuk* and population.

## 3.6 An Econometric Model and Empirical Method

Based on the hypothesis, it is necessary to establish a regression model that focused on the identify and predicts how the relationship between dependent variable and independent variables. the usage of Natural Log (Ln) aims to change the data that was originally distributed not normal to near normal distribution. An econometric model for this study are shown below:

$$\mathbf{Y = \beta_0 + \beta_{1it}x_{1it} + \beta_{2it}x_{it} + \beta_{3it}x_{it} + \varepsilon_{it}}$$

$$\mathbf{LnGDPPC_{it} = \beta_0 + \beta_1 LnSUKUK_{it} + \beta_2 LnPOP_{it} + \beta_3 LnFDI_{it} + \varepsilon_{it}\ldots.(Model\ 1)}$$

$$\mathbf{LnSUKUK_{it} = \beta_0 + \beta_1 LnGDPPC_{it} + \beta_2 LnPOP_{it} + \beta_3\, LnFDI_{it} + \varepsilon_{it}\ldots(Model\ 2)}$$

$$\mathbf{LnGDPPC_{it} = \beta_0 + \beta_1 LnSUKUK_{it} + \beta_2 LnPOP_{it} + \beta_3 LnFDI_{it} + \alpha_4 Dgfc_{it} + \varepsilon_{it}\ldots(Model\ 3)}$$

Where:

| | |
|---|---|
| Y | : Dependent Variables |
| LnGDPPC | : Gross Domestic Product |
| $\beta_0$ | : Constant |
| $\beta_1$ | : Coefficient of the Parameters |
| LnSUKUK | : *Sukuk* |
| LnPOP | : Population |
| LnFDI | : Foreign Direct Investment |
| Dgfc | : Dummy Global Financial Crisis |
| ε | : Error Term |
| i | : Cross-sectional Unit |
| t | : Time Period |
| Ln | : Natural Log |

### 3.7 Analysis Model and Technical Analysis

The analysis in this research is conducted quantitatively. After collecting samples, determine the variables, build a theoretical framework and make the hypothesis testing. The next step is to perform data processing by using Multiple Linear Regression model that will be used in the testing of Eviews version 9.0 program. Multiple Linear Regression is a statistical technique to predict the influence of the dependent variable with two or more independent variables.

The procedures of data management will be done in research are:

1. Converts the obtained data into the proxy to be used as independent variables by using software of Microsoft Excel for each year during the research period since 2000 until 2015.
2. Then, perform descriptive analysis and multiple linear regressions by using Eviews version 9.0. In the regression of variables, all the independent variables included in the model simultaneously in order

to see how the contribution of each independent variables is explaining the dependent variable.

### 3.7.1 Pearson Correlation

Pearson correlation is one of the correlations that is used to measures the strength and the direction of a linear relationship between two variables, namely independent variables and dependent variables. Two variables can be said to be correlated if the changes of one variable are accompanied by the changes in other variables, either in the same direction or the opposite direction. Therefore, the coefficient of correlation only measures the strength of linear relationship not on a non-linear relationship.

The range value of Pearson correlation is at the distance of 1 and -1. 1 indicates that there is a perfect positive correlation between variables, while -1 indicates that there is a perfect negative correlation between the variables.



### 3.7.2 Classical Assumption Test

A classical assumption test used in linear regression approach to Ordinary Least Square (OLS) included the test of Autocorrelation, Heteroscedasticity, Multicollinearity and Normality. However, not all classical assumption test must be performed on each linear regression model with the OLS approach. In this study, the only use Multicollinearity and Heteroscedasticity test due to the other test assumed not exist because of the data type used is panel data.

#### 3.7.2.1 Multicollinearity test

A strong correlation between the independent variables is called Multicollinearity. The purpose of the detection of the multicollinearity is to know whether each variable is linearly related to each other in the used of the regression

model (Gujarati, 2003). The problem of multicollinearity arises when the independent variables related to one another. On the other hand, besides reducing the ability to explain and predict, it may also lead to the standards error coefficient (t-test) be the indicator that is not trusted. The used of Variance Inflation Factor (VIF) in this study to test the multicollinearity. If the value of VIF more than 10, it means that multicollinearity problem exists.

#### 3.7.2.2 Heteroscedasticity test

Heteroscedasticity test is used to see if the residual of the model that formed has a constant variance or not. A good model has a variance from any interference or residual constant. In other words, heteroscedasticity is a situation when the assumption is not achieved or where the expectations of the error and the variance of the error are different for each time period. This study is using Autoregressive Conditional Heteroscedasticity (ARCH) test to detects whether there is a problem to heteroscedasticity or not.



## 3.8 Regression Model

This study used panel regression model which is based on the panel data. The purpose of the regression model is to derives the relationship between dependent variable and independent variables. Therefore, there are three basic approaches in making a regression that consist of:

1. Pooled Least Square

   Pooled Least Square or Common Effect Model is a common panel data approach model by combine time-series and cross-section. This method used Ordinary Least Square (OLS) approach or the smallest square technique to estimates the panel data model. Panel Ordinary

Least Square (POLS) is refers to a procedure of standard linear regression in order to minimizing the difference between the observed responses in some arbitrary dataset and the responses predicted by the linear approximation of the data (Gujarati, 2008).

2. Fixed Effect Approach

In this approach, the panel data model has an intercept which may be changed for each individual and time, where each unit of the cross-section are fixed to the time-series.

3. Random Effect Approach

In this approach, the difference of over time and individuals accommodated by error. Error in this approach is divided into three parts namely individual components of error, time components of error and combined components of error. In addition, the most favorite method used in this approach is Generalized Least Square (GLS) method (Gujarati, 2008).



This study used two test to choose which model is more preferable. The procedure selection of the right model is as follows:

**1. Hausman Test**

The Hausman test is used to select the best model between the Fixed Effect Model or Random Effect Model. If $H_o$ is accepted, then the Random Effect Model more efficient, whereas if $H_o$ rejected, then the Fixed Effect Model is more appropriate than the Random Effect Model. In other words, if p-value greater than 0.05, it means than random fixed effect model is preferable rather than fixed effect model.

**2. Likelihood Ratio**

Likelihood ratio or commonly known as Redundant Fixed Effect is used to select which model is more preferable between the Common Effect Model and Fixed Effect Model. If the value of chi-square is greater than 0.05 (p-value > 0.05), then the Common Effect Model is better rather than Fixed Effect Model.

## 3.9 Statistical Testing Model

### 3.9.1 T-Static Test

The aim of this statistical test is to see the significant of the individual influence of the independent variables on the dependent variable. The t-test used in this study is:

$H_0$: $\beta_i = 0$

$H_1$: $\beta_i \neq 0$



Beta is the slope of the independent model. When the value of statistical beta is equal to zero, then the independent variables have no significant relationship to the dependent variable. $H_0$ acceptance criteria are as follow:

a. Based on the comparison of t-static with t-table

   Comparing the calculation of t-value to t-table, with the degree of freedom n-2, where n is the number of observations as well as the level of significance to be used.

   - If t static > t table, $H_o$ rejected
   - If t static < t table, $H_o$ accepted

b. Based on the probability

- If the probability (p-value) > 0.10, so $H_o$ accepted
- If the probability (p-value) < 0.10, so $H_o$ rejected

### 3.9.2 f-Static Test

The function of f-Test is to tests whether the coefficient of regression is significant or not significant of coefficient regression is statistically not equal to zero. The f-test used in this study is:

H0: $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5 = 0$

H1 : $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5 \neq 0$

Beta is the slope of the independent model, $H_0$ acceptance criteria are as follows:

a. Based on the comparison of f-static with f-table
   - If f-static > $F_{a;(k, n-k-1)}$, $H_o$ rejected
   - If f-static < $F_{a;(k, n-k-1)}$, $H_o$ accepted
b. Based on the probability
   - If the probability (p-value) > 0.05, so $H_o$ accepted
   - If the probability (p-value) < 0.05, so $H_o$ rejected



### 3.9.3 Coefficient Determination

$R^2$ or adjusted $R^2$ also known as the coefficient of determination. The function of the coefficient is to identify how large the proportion in which the dependent variable could be explained the independent variables together in the same. This value indicates how close the estimated regression line to the actual data. Furthermore, the range value of the $R^2$ is between $0 < R^2 < 1$. The larger value of the $R^2$, the better of the regression model. In addition, if $R^2$ value is 0, it means the

variation of the dependent variable could not be explained at all of the independent variables.

## 3.10 Concluding Remarks

In conclusion, this chapter provides a clear explanation of the stages in the settlement problems that are discussed in this study, answer the questions and achieve the objectives of this research.

# CHAPTER 4

# EMPIRICAL FINDINGS

## 4.0 Introduction

This chapter provides an answer the problems and questions are presented in chapter 1. In this section presents the empirical results of the relationship between *sukuk* and economic growth which is consists of descriptive analysis, correlation matrix, findings of the study based on panel regression analysis and concluding remarks for this section.

## 4.1 Descriptive Analysis

The descriptive statistic used to describe in generally about the overall descriptive data. In Table 4.1 presents descriptive statistics which is divided into two parts, namely Panel A for the first model and Panel B for the second model.

Table 4.1 *Descriptive Statistics*

| | Mean | Median | Maximum | Minimum | Std. Dev. |
|---|---|---|---|---|---|
| **Panel A (DV: GDP per Capita)** | | | | | |
| LNGDPPC | 8.8024 | 9.1867 | 10.7303 | 5.9095 | 1.2757 |
| LNSUKUK | 21.4651 | 21.3513 | 26.3968 | 15.4250 | 1.7812 |
| LNPOP | 16.9291 | 17.1680 | 19.3668 | 13.4515 | 1.6795 |
| LNFDI | 22.3119 | 22.9053 | 24.3985 | 18.2020 | 1.4913 |
| **Panel B (DV: *Sukuk*)** | | | | | |
| LNSUKUK | 21.4651 | 21.3513 | 26.3968 | 15.4250 | 1.7812 |
| LNGDPPC | 8.8024 | 9.1867 | 10.7303 | 5.9095 | 1.2757 |
| LNPOP | 16.9291 | 17.1680 | 19.3668 | 13.4515 | 1.6795 |
| LNFDI | 22.3119 | 22.9053 | 24.3985 | 18.2020 | 1.4913 |

Note: *,**,*** significant at 10 percent, 5 percent and 1 percent level respectively. LNGDPPC: GDP per Capita, LNSUKUK: *Sukuk* issuance, LNPOP: Population, LNFDI: Foreign Direct Investment

Based on Table 4.1 above, the descriptive statistic is presented on the independent variables, namely GDP per Capita, *Sukuk*, Population and FDI while GDP per Capita and *Sukuk* are as dependent variables. The average of GDP per Capita is 8.8024 with a standard deviation 1.2757, while the average of *Sukuk* is 21.4651 with a standard deviation 1.7812. Compare to Elkarim (2012) study which analysis the relationship between *sukuk* or conventional bond to the economic growth in Malaysia, the average of *sukuk* for this study is higher than the Malaysia which is 7.6851. This is analogical considering that this study combination of several countries which issued *sukuk* while the previous study only for Malaysia. In conclusion, based on the descriptive statistic, the average and standard deviation of GDP per Capita is lower than *sukuk* issuance.

## 4.2 Pearson Correlation

Pearson correlation was used to identify the relationship between two variables. The results of this correlation as present in Table 4.2.

Table 4.2 *Correlation Matrix*

| | LNGDPPC | LNSUKUK | LNPOP | LNFDI |
|---|---|---|---|---|
| **Panel A (DV: GDP per Capita)** | | | | |
| LNGDPPC | 1.0000 | | | |
| | ----- | | | |
| LNSUKUK | 0.4051*** | 1.0000 | | |
| | 0.0010 | ----- | | |
| LNPOP | -0.5262*** | 0.0867 | 1.0000 | |
| | 0.0000 | 0.4995 | ----- | |
| LNFDI | 0.1539 | 0.3053** | 0.6067*** | 1.0000 |
| | 0.2284 | 0.0150 | 0.0000 | ----- |
| **Panel B (DV: *Sukuk*)** | | | | |
| LNSUKUK | 1.0000 | | | |
| | ----- | | | |
| LNGDPPC | 0.4051*** | 1.0000 | | |
| | 0.0010 | ----- | | |
| LNPOP | 0.0867 | -0.5262*** | 1.0000 | |
| | 0.4995 | 0.0000 | ----- | |
| LNFDI | 0.3053** | 0.1539 | 0.6067*** | 1.0000 |
| | 0.0150 | 0.2284 | 0.0000 | ----- |

Note: *, **, *** significant at 10 percent, 5 percent and 1 percent level respectively

In table 4.2, Panel A shows that there is no variable that has strong or perfect correlations, either in positive or negative. However, only the LNPOP and LNGDPPC (-0.52) with also LNFDI and LNPOP (0.60) that have negative and positive moderate correlation respectively, while other variables are weak or negligible (in positive or negative). Furthermore, Panel B indicates that the range

value starts from 0.08 to 0.60 which means that there are no variables that have a strong or perfect correlation. The variables of LNPOP and LNSUKUK with LNFDI and LNPOP shows negative and positive moderate correlation, -0.52 and 0.60 respectively.

## 4.3 Diagnostic Test

### 4.3.1 Multicollinearity Test

Table 4.3 represents the results of multicollinearity test by using the Variance Inflation Factor (VIF). If the value of VIF more than 10, it means that multicollinearity problem exists. The results show that all of the VIF values less than 10. It means that multicollinearity does not exist. In other words, independent variables are not related to each other.

Table 4.3 *Variance Inflation Factor*

| | VIF |
|---|---|
| **Panel A (DV: GDP per Capita)** | |
| LNSUKUK | 1.1218 |
| LNPOP | 1.6096 |
| LNFDI | 1.7618 |
| **Panel B (DV: *Sukuk*)** | |
| LNGDPPC | 2.7114 |
| LNPOP | 4.1887 |
| LNFDI | 3.1024 |



### 4.3.2 Heteroscedasticity Test

The result of heteroscedasticity by using the Autoregressive Conditional Heteroscedasticity (ARCH) test is presented in table 4.4. Based on the result from panel A and panel B, the p-value is more than 0.05 which indicates that the presence

of insignificant heteroscedasticity. In other words, the issue of heteroscedasticity does not exist.

Table 4.4 *Heteroscedasticity ARCH test*

| | Obs*R-squared | Prob. Chi-Square |
|---|---|---|
| **Panel A** | 4.4674 | 0.0545 |
| **Panel B** | 1.6829 | 0.1945 |

## 4.4 Discussion on Findings

As mentioned in chapter 3, to know the influence of independent variables to the dependent variable, then the analysis of Panel Ordinary Least Square (POLS) is conducted. Before presenting the results of the regression, the Hausman test and likelihood ratio are done first in order to determine which model is better. The aim of Hausman test is to know which model is preferable between fixed effect model and random effect model, while likelihood ratio to find out whether a common effect model or fixed effect model is better. The results are as follows:

Table 4.5 *Hausman Test and likelihood Ratio*

| | Test Summary | Test Statistics | Probability |
|---|---|---|---|
| Hausman Test | **Panel A** | 55.8279 | 0.0000 |
| | **Panel B** | 14.1674 | 0.0027 |
| Likelihood Ratio | **Panel A** | 90.8033 | 0.0000 |
| | **Panel B** | 21.2921 | 0.0000 |

It can be clearly seen in table 4.5 that the p-value of Hausman test of panel A and panel B showed lower than 0.05 which indicates that fixed effect model is better compared to the random effects model. Furthermore, for the likelihood ratio the results also similar to the Hausman test revealed that fixed random effect model more appropriate compared to the common effect model. Considering the existence of those results, this study also presents the result of common effect model for panel A and B for comparison to all types of models.

Table 4.6 *Regression Results (Common Effect Model)*

| Variable | Coefficient | T-Statistic | Prob. |
|---|---|---|---|
| **Panel A (DV: GDP per Capita)** | | | |
| LNSUKUK | 0.2101 | 3.9362*** | 0.0002 |
| LNPOP | -0.7100 | -10.4702*** | 0.0000 |
| LNFDI | 0.5401 | 6.7607*** | 0.0000 |
| $R^2$ | 0.7079 | | |
| F-statistic | 47.6609*** | | |
| **Panel B (DV: *Sukuk*)** | | | |
| LNGDPPC | 0.9900 | 3.9362*** | 0.0002 |
| LNPOP | 0.5718 | 2.4082** | 0.0192 |
| LNFDI | -0.1564 | -0.6794 | 0.4995 |
| $R^2$ | 0.2940 | | |
| F-statistic | 8.1898*** | | |

*, **, *** significant at 10 percent, 5 percent and 1 percent level respectively

Table 4.6 shows the result of the analysis regression of the common effect model. Panel A showed that all variables (*Sukuk*, Population and FDI) significantly effect on the economic growth. Nevertheless, it shows that population has a negative association with the economic growth. On the other hand, Panel B indicates only two variables that affect to the issuance of *sukuk* (GDP per Capita and Population). While the variable of FDI does not effect to the issuance of *sukuk*. In addition, the value of

the coefficient of determination ($R^2$) for each panel classification (Panel A and Panel B) indicates that all independent variables were able to explain the variance of dependent variables in an amount of 70.79% and 29.4% respectively.

Table 4.7 *Regression Results*

| | Variable | Coefficient | T-Statics | Prob. |
|---|---|---|---|---|
| Fixed Effect | **Panel A** | | | |
| | LNSUKUK | 0.1486 | 5.2721*** | 0.0000 |
| | LNPOP | 0.5639 | 1.8692* | 0.0671 |
| | INFDI | 0.0623 | 1.8362* | 0.0719 |
| | R-squared | 0.9741 | | |
| | Adjusted R-squared | 0.9697 | | |
| | F-statistic | 221.5109 | | |
| Fixed Effect | **Panel B** | | | |
| | LNGDPPC | 2.3154 | 5.2721*** | 0.0000 |
| | LNPOP | 2.6706 | 2.2756** | 0.0269 |
| | INFDI | 0.0552 | 0.4002 | 0.6906 |
| | R-squared | 0.7930 | | |
| | Adjusted R-squared | 0.7578 | | |
| | F-statistic | 22.5582 | | |
| Common Effect | **Panel C (Dummy Variable)** | | | |
| | LNSUKUK | 0.1981 | 3.7413*** | 0.0004 |
| | LNPOP | -0.7209 | -10.7632*** | 0.0000 |
| | INFDI | 0.5441 | 6.9220*** | 0.0000 |
| | DGFC | 0.3413 | 1.7352* | 0.0880 |
| | R-squared | 0.7223 | | |
| | Adjusted R-squared | 0.7032 | | |
| | F-statistic | 37.7168 | | |
| Random Effect | **Panel C (Dummy Variable)** | | | |
| | LNSUKUK | 0.1904 | 8.1370*** | 0.0000 |
| | LNPOP | -0.4274 | -4.8062*** | 0.0000 |
| | INFDI | 0.0944 | 2.8514*** | 0.0060 |
| | DGFC | 0.1924 | 3.0062*** | 0.0039 |
| | R-squared | 0.5547 | | |
| | Adjusted R-squared | 0.5240 | | |
| | Prob(F-statistic) | 0.0000 | | |

*, **, *** significant at 10 percent, 5 percent and 1 percent level respectively

As shown in Table 4.7, the fixed random effects for panel A denotes that all the independent variables affect the economic growth namely *sukuk*, population and FDI. The result of *sukuk* has a positive and significant impact on the economic

growth which is similar to the research conducted by (Nayan & Kadir, 2014; Ascarya & Yumanita, 2008) and these results is also supported by Harrod-Domar Theory. The coefficient of *sukuk* means that, an increase 1% of *sukuk* issuance, then GDP per Capita will increase by 0.15%. On the other hand, the output of population is positively and significantly impact to the GDP per Capita. It denotes that if population increase by 1%, then the GDP per Capita will also experience increase by 0.56%. Furthermore, the outcome of FDI is analogous with the Rostow theory. By the presence of high levels of investment, it will encourages the economic growth. These findings indicate that increase 1% in FDI, GDP per Capita will increase by 0.06%.

Panel B indicates that only two variables affect to the *sukuk* issuance which is consist of GDP per Capita and population. The output of GDP per capita is positively and significantly effect to the issuance of *sukuk.* This finding was also approved by the previous research in Indonesia and Malaysia conducted by (Ahmad et al, 2012; Selvianty, 2015; Rini, 2012). This implies that each 1% increase in GDP per Capita, it will be followed by the increase in *sukuk* issuance of 2.31%. Moreover, the results show that population has a positive and significant influence to the *sukuk* issuance. This reveals that if population increase by 1%, it will be followed by the increase in *sukuk* issuance of 2.67%. In addition, the output of FDI shows that there is a positive relationship of FDI to the *sukuk* issuance.

Furthermore, the results of common effect in Panel C denotes that all of the independent variables have a significant influence on the economic growth, namely *Sukuk*, Population, FDI and dummy variable of GFC. However, the variable of population direction show that the significant and negative effect relationship between population and economic growth. Based on the coefficient of population

indicates that increase 1% of the population, it will be following by decrease 0.72% of economic growth. Moreover, the result of random effect model for panel C shows almost similar to the common effect model. All of the independent variables have a significant and positive influences on the economic growth, but only the variable of population has a significant and negative influence to the economic growth.

Based on table 4.7, the coefficient of determination ($R^2$) for panel A and panel B shows an amount of 97.41% and 79.30% respectively. It indicates that the independent variables of panel A which is consists of *Sukuk*, Population and FDI are able to explain the variance of the GDP per Capita by 97.41%, while the remaining of 2.59% is explained by other factors. It is also occur in panel B where the independent variables of GDP per Capita, Population and FDI are able to explain the variance of the *Sukuk* at 79.30% and the remaining of 20.70% explained by other factors. Furthermore, the coefficient of determination ($R^2$) in panel C also indicates that the variables of *Sukuk*, Population, FDI and DGFC are able to explain the variance of economic growth by 72.23% and 55.97% respectively. In other words, the higher of the coefficient $R^2$, then the ability of independent variables to provide information to predict dependent variable is better.

T-statics refer to the influence of each independent variables against the dependent variable. Based on table 4.7, the results indicate that both panels that have been tested show the different results.

## 4.5 Hypothesis Testing

Based on the calculation in table 4.7 hypothesis testing results can be described as follows:

**Hypothesis 1** stated that a significant relationship between *sukuk* and economic growth. In table 4.7 can be seen the value of t-static is 5.2721 whereas the value of t-table at the level of 95% significant (α = 0.05) and the degree of freedom of the 59 (63-3-1) is 2.000, then $t_{static} > t_{table}$ (α=0.05), the results of the analysis is significant. This means that hypothesis 1 can be accepted because the variable of *sukuk* issuance significantly to economic growth. In other words, the positive effect of *sukuk* issuance on the economic growth.

**Hypothesis 2** stated that a significant relationship between *sukuk* and population. In table 4.7 can be seen the value of t-static is 2.2756 whereas the value of t-table at the level of 95% significant (α = 0.05) and the degree of freedom of the 59 (63-3-1) is 2.000, then $t_{static} > t_{table}$ (α=0.05), the results of the analysis is significant. This means that hypothesis 2 can be accepted because the variable of population significantly to *sukuk* issuance. In other words, the positive effect of population on the *sukuk* issuance.



## 4.6 Concluding Remarks

This chapter presents the results and findings of this study. In section 4.2 deals with descriptive statistics for all variables. The results show that the average of GDP per Capita is lower when compared to the *sukuk* issuance. Section 4.3 indicates that there is no correlation among the variables. In other words, multicollinearity problem does not exist. This result is reinforced by VIF test in section 4.4 which demonstrate the value of VIF below than 10. Furthermore, the outcome of heteroscedasticity test denotes that the issue of heteroscedasticity does not occur.

Finally, the findings of this study are presented in section 4.5. The results of the fixed effect model for panel A shows that *sukuk* issuance, population and FDI

have a positive and significant relationship to the economic growth. While panel B indicates that only GDP per Capita and population positively and significantly impact to the *sukuk* issuance. The variable of FDI does not affect to the issuance of *sukuk*. In addition, the output of panel C denotes that all of the independent variables have a significant and positive influence to the economic growth. Only the variable of population has a significant and negative influence to the economic growth.

# CHAPTER 5

# CONCLUSION AND RECOMMENDATION

## 5.0 Introduction

This chapter is the last part of this study that consists of the conclusion of the findings as well as implications and recommendation to other researchers who will conduct research in the future.

## 5.1 Conclusion

This study was conducted with the purposes to investigate the relationship between *sukuk* and macroeconomic variables namely GDP per Capita, Population and FDI. Then, this research has two model frameworks with two dependent variables which are consist of GDP per Capita and *sukuk.* The time period used is started from 2000 up to 2015 involving seven countries namely Malaysia, Indonesia, Saudi Arabia, United Arab Emirates, Turkey, Bahrain and Sudan.

This research seeks to complement the previous study that carried out by Nayan & Kadir (2014) who examines the influence of *sukuk*, capital formation, inflation and population on the economic growth. Other than that, it also attempts complement the research that was undertaken by Elkarim (2012) regarding the influence of GDP, inflation and interest against the sukuk and conventional bond.

The results on panel A show that all of the independent variables namely *Sukuk*, Population and FDI positively and significantly influence the economic growth. The output states that *sukuk* issuance effect to the economic growth is the same as the previous research conducted by Nayan & Kadir (2014). It implies that the higher level of *sukuk* issuance, the more the contribution to the economic growth and so this results support Harrod-Domar's Theory.

Furthermore, the findings of the panel B indicated that GDP per Capita be affected to the issuance of *sukuk*. This output is same result to the findings of the study that conducted by Rani (2012) and Elkarim (2012). Moreover, the population was positively and significantly influenced the *sukuk* issuance. It is indicated that normally Muslim citizen prefer investment based on *shariah* compliance when compared to conventional economic. The findings of the population is in line with Rostow's theory that stated the population has a role in supporting investment level. However, the total population does not exceed the level of investment in order to accelerate the economic growth of a country.

In addition, the output of panel C indicates that all of independent variables have a significant and positive influence to the economic growth. However, only variable of population has a significant and negative influence to the economic growth. The presence of dummy variable of global financial crisis in panel C indicates that global financial crisis has an impact to the economic growth.



## 5.2 Implication of Study

For the government, the results of this findings can be used as the main policy for maintaining the stability of financial instruments in Islamic economic systems. This is due to the variables of *sukuk* and population have the great influence on the economic growth.

For investors (public and financial institutions), they can use the findings of this study to be more prudent in selecting financial instruments that guaranteed halal and provide the low risk. *Sukuk* is the selected instrument to invest. Finally, for the issuers such as government and corporation should add more value of *sukuk* issuance and maintaining the stability of *sukuk* issuance value in order to support the growing of *sukuk* market, particularly Islamic capital market.

## 5.3 Recommendation for the Future Research

This section provides several recommendations for the future research. In subsequent studies suggested that increasing the number of samples become more. It is intended to obtain the most accurate result. Furthermore, add other macroeconomic variables or other factors that effect to the issuance of *sukuk* like the inflation, the rate of bond returns or market liquidity for the purpose of exploring more explanatory variables. In addition, it would more attractive if the following researchers added a conventional bond in comparison with *sukuk* as well as using other methods such as Generalized Method of Moments system (GMM) or Granger Causality test.

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## APPENDIX A

DESCRIPTIVE STATISTICS INDICATORS FOR THE VARIABLES OF THE RESEARCH

| **PANEL A** | LNGDPPC | LNSUKUK | LNPOP | LNFDI |
|---|---|---|---|---|
| Mean | 8.8024 | 21.4651 | 16.9291 | 22.3119 |
| Median | 9.1867 | 21.3513 | 17.1680 | 22.9053 |
| Maximum | 10.7303 | 26.3968 | 19.3668 | 24.3985 |
| Minimum | 5.9095 | 15.4250 | 13.4515 | 18.2020 |
| Std. Dev. | 1.2757 | 1.7812 | 1.6795 | 1.4913 |
| Skewness | -0.5836 | -0.1627 | -0.5868 | -0.8135 |
| Kurtosis | 2.4766 | 4.2896 | 2.8491 | 2.9693 |
| | | | | |
| Jarque-Bera | 4.2951 | 4.6432 | 3.6751 | 6.9512 |
| Probability | 0.1168 | 0.0981 | 0.1592 | 0.0309 |
| | | | | |
| Sum | 554.5504 | 1352.3030 | 1066.5310 | 1405.6510 |
| Sum Sq. Dev. | 100.9012 | 196.7069 | 174.8808 | 137.8818 |
| | | | | |
| Observations | 63 | 63 | 63 | 63 |

| **PANEL B** | LNSUKUK | LNGDPPC | LNPOP | LNFDI |
|---|---|---|---|---|
| Mean | 21.4651 | 8.8024 | 16.9291 | 22.3119 |
| Median | 21.3513 | 9.1867 | 17.1680 | 22.9053 |
| Maximum | 26.3968 | 10.7303 | 19.3668 | 24.3985 |
| Minimum | 15.4250 | 5.9095 | 13.4515 | 18.2020 |
| Std. Dev. | 1.7812 | 1.2757 | 1.6795 | 1.4913 |
| Skewness | -0.1627 | -0.5836 | -0.5868 | -0.8135 |
| Kurtosis | 4.2896 | 2.4766 | 2.8491 | 2.9693 |
| | | | | |
| Jarque-Bera | 4.6432 | 4.2951 | 3.6751 | 6.9512 |
| Probability | 0.0981 | 0.1168 | 0.1592 | 0.0309 |
| | | | | |
| Sum | 1352.3030 | 554.5504 | 1066.5310 | 1405.6510 |
| Sum Sq. Dev. | 196.7069 | 100.9012 | 174.8808 | 137.8818 |
| | | | | |
| Observations | 63 | 63 | 63 | 63 |

## APPENDIX B

RELATIONSHIP BETWEEN SUKUK, GDP PER CAPITA POPULATION AND FOREIGN DIRECT INVESTMENT

**PANEL A**

Covariance Analysis: Ordinary
Date: 10/27/16 Time: 11:53
Sample: 2000 2014
Included observations: 63
Balanced sample (listwise missing value deletion)

| Correlation<br>Probability | LNGDPPC | LNSUKUK | LNPOP | LNFDI |
|---|---|---|---|---|
| LNGDPPC | 1.0000<br>----- | | | |
| LNSUKUK | 0.4051<br>0.0010 | 1.0000<br>----- | | |
| LNPOP | -0.5262<br>0.0000 | 0.0867<br>0.4995 | 1.0000<br>----- | |
| LNFDI | 0.1539<br>0.2284 | 0.3053<br>0.0150 | 0.6067<br>0.0000 | 1.0000<br>----- |

**PANEL B**

Covariance Analysis: Ordinary
Date: 10/27/16 Time: 12:41
Sample: 2000 2014
Included observations: 63
Balanced sample (listwise missing value deletion)

| Correlation<br>Probability | LNSUKUK | LNGDPPC | LNPOP | LNFDI |
|---|---|---|---|---|
| LNSUKUK | 1.0000<br>----- | | | |
| LNGDPPC | 0.4051<br>0.0010 | 1.0000<br>----- | | |
| LNPOP | 0.0867<br>0.4995 | -0.5262<br>0.0000 | 1.0000<br>----- | |
| LNFDI | 0.3053<br>0.0150 | 0.1539<br>0.2284 | 0.6067<br>0.0000 | 1.0000<br>----- |

**PANEL C**

Covariance Analysis: Ordinary
Date: 12/14/16 Time: 21:13
Sample: 2000 2014
Included observations: 63
Balanced sample (listwise missing value deletion)

| Correlation<br>Probability | LNGDPPC | LNSUKUK | LNPOP | INFDI | DGFC |
|---|---|---|---|---|---|
| LNGDPPC | 1<br>----- | | | | |
| LNSUKUK | 0.4051<br>0.0010 | 1.0000<br>----- | | | |
| LNPOP | -0.5262<br>0.0000 | 0.0867<br>0.4995 | 1.0000<br>----- | | |
| INFDI | 0.1539<br>0.2284 | 0.3053<br>0.0150 | 0.6067<br>0.0000 | 1.0000<br>----- | |
| DGFC | 0.1061<br>0.4078 | 0.1365<br>0.2861 | 0.1073<br>0.4025 | 0.0761<br>0.5533 | 1.0000<br>----- |

## APPENDIX C

MULTICOLLINEARITY TEST

**PANEL A**

Variance Inflation Factors
Date: 10/27/16 Time: 12:08
Sample: 1 68
Included observations: 63

| Variable | Coefficient Variance | Uncentered VIF | Centered VIF |
|---|---|---|---|
| LNSUKUK | 0.002849 | 166.6665 | 1.12183 |
| LNPOP | 0.004598 | 167.7982 | 1.60967 |
| LNFDI | 0.006383 | 402.5086 | 1.76183 |
| C | 2.351894 | 296.6034 | NA |

**PANEL B**

Variance Inflation Factors
Date: 10/27/16 Time: 13:05
Sample: 1 68
Included observations: 63

| Variable | Coefficient Variance | Uncentered VIF | Centered VIF |
|---|---|---|---|
| LNGDPPC | 0.063251 | 133.8828 | 2.711403 |
| LNPOP | 0.056379 | 436.6546 | 4.188777 |
| LNFDI | 0.052962 | 708.782 | 3.102417 |
| C | 11.80189 | 315.8782 | NA |

**PANEL C**

Date: 12/14/16 Time: 21:24
Sample: 1 68
Included observations:
63

| Variable | Coefficient Variance | Uncentered VIF | Centered VIF |
|---|---|---|---|
| LNSUKUK | 0.0028 | 169.5685 | 1.1414 |
| LNPOP | 0.0045 | 169.2990 | 1.6241 |
| INFDI | 0.0062 | 402.8427 | 1.7633 |
| DGFC | 0.0387 | 1.4413 | 1.0295 |
| C | 2.2965 | 299.4881 | NA |

## APPENDIX D

HETEROSKEDASTICITY TEST

Heteroskedasticity Test: ARCH

| | | | |
|---|---|---|---|
| F-statistic | 4.665934 | Prob. F(1,58) | 0.0349 |
| Obs*R-squared | 4.467436 | Prob. Chi-Square(1) | 0.0545 |

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 10/27/16 Time: 12:07
Sample (adjusted): 2 68
Included observations: 60 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 0.356544 | 0.104743 | 3.40398 | 0.0012 |
| RESID^2(-1) | 0.271504 | 0.125692 | 2.16008 | 0.0349 |

| | | | |
|---|---|---|---|
| R-squared | 0.074457 | Mean dependent var | 0.48575 |
| Adjusted R-squared | 0.0585 | S.D. dependent var | 0.68642 |
| S.E. of regression | 0.666041 | Akaike info criterion | 2.05783 |
| Sum squared resid | 25.72943 | Schwarz criterion | 2.12765 |
| Log likelihood | -59.73503 | Hannan-Quinn criter. | 2.08514 |
| F-statistic | 4.665934 | Durbin-Watson stat | 2.12666 |
| Prob(F-statistic) | 0.034912 | | |

**PANEL A**

**PANEL B**

Heteroskedasticity Test: ARCH

| | | | |
|---|---|---|---|
| F-statistic | 1.673796 | Prob. F(1,58) | 0.2009 |
| Obs*R-squared | 1.682945 | Prob. Chi-Square(1) | 0.1945 |

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 10/27/16 Time: 13:04
Sample (adjusted): 2 68
Included observations: 60 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 1.772136 | 0.535494 | 3.30935 | 0.0016 |
| RESID^2(-1) | 0.167999 | 0.129854 | 1.29375 | 0.2009 |

| | | | |
|---|---|---|---|
| R-squared | 0.028049 | Mean dependent var | 2.15632 |
| Adjusted R-squared | 0.011291 | S.D. dependent var | 3.47138 |
| S.E. of regression | 3.45173 | Akaike info criterion | 5.34839 |
| Sum squared resid | 691.0377 | Schwarz criterion | 5.41821 |
| Log likelihood | -158.4518 | Hannan-Quinn criter. | 5.3757 |
| F-statistic | 1.673796 | Durbin-Watson stat | 2.0391 |
| Prob(F-statistic) | 0.200879 | | |

## APPENDIX E

COMMON EFFECT MODEL

**PANEL C**

Dependent Variable: LNGDPPC
Method: Panel Least Squares
Date: 12/14/16 Time: 11:27
Sample: 2000 2015
Periods included: 16
Cross-sections included: 7
Total panel (unbalanced)
observations: 63

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| LNSUKUK | 0.198081 | 0.0529 | 3.74134 | 0.0004 |
| LNPOP | -0.72092 | 0.0670 | -10.7632 | 0.0000 |
| INFDI | 0.544071 | 0.0786 | 6.92205 | 0.0000 |
| DGFC | 0.341274 | 0.1967 | 1.73523 | 0.0880 |
| C | 4.51828 | 1.5154 | 2.98154 | 0.0042 |

| | | | |
|---|---|---|---|
| R-squared | 0.7223 | Mean dependent var | 8.8024 |
| Adjusted R-squared | 0.7032 | S.D. dependent var | 1.2757 |
| S.E. of regression | 0.6950 | Akaike info criterion | 2.1864 |
| Sum squared resid | 28.0191 | Schwarz criterion | 2.3564 |
| Log likelihood | -63.8703 | Hannan-Quinn criter. | 2.2533 |
| F-statistic | 37.7168 | Durbin-Watson stat | 0.7135 |
| Prob(F-statistic) | 0.0000 | | |

## APPENDIX F

FIXED EFFECT REGRESSION MODEL

**PANEL A**

Dependent Variable: LNGDPPC
Method: Panel Least Squares
Date: 10/27/16 Time: 11:55
Sample: 2000 2015
Periods included: 16
Cross-sections included: 7
Total panel (unbalanced) observations: 63

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| LNSUKUK | 0.148577 | 0.028182 | 5.272075 | 0.0000 |
| LNPOP | 0.563925 | 0.301689 | 1.869227 | 0.0671 |
| LNFDI | 0.062266 | 0.03391 | 1.836192 | 0.0719 |
| C | -5.322843 | 4.859571 | -1.095332 | 0.2783 |

Effects Specification

Cross-section fixed (dummy variables)

| | | | |
|---|---|---|---|
| R-squared | 0.9741 | Mean dependent var | 8.802387 |
| Adjusted R-squared | 0.9697 | S.D. dependent var | 1.275711 |
| S.E. of regression | 0.2220 | Akaike info criterion | -0.027298 |
| Sum squared resid | 2.6130 | Schwarz criterion | 0.312883 |
| Log likelihood | 10.8599 | Hannan-Quinn criter. | 0.106497 |
| F-statistic | 221.5109 | Durbin-Watson stat | 0.955095 |
| Prob(F-statistic) | 0.0000 | | |

**PANEL B**

Dependent Variable: LNSUKUK
Method: Panel Least Squares
Date: 10/27/16 Time: 12:45
Sample: 2000 2015
Periods included: 16
Cross-sections included: 7
Total panel (unbalanced) observations: 63

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| LNGDPPC | 2.31541 | 0.439184 | 5.272075 | 0 |
| LNPOP | 2.670632 | 1.173594 | 2.2756 | 0.0269 |
| LNFDI | 0.055165 | 0.13785 | 0.400179 | 0.6906 |
| C | -45.35815 | 18.37207 | -2.468864 | 0.0168 |

Effects Specification

Cross-section fixed (dummy variables)

| | | | |
|---|---|---|---|
| R-squared | 0.792988 | Mean dependent var | 21.46513 |
| Adjusted R-squared | 0.757835 | S.D. dependent var | 1.781205 |
| S.E. of regression | 0.876536 | Akaike info criterion | 2.718941 |
| Sum squared resid | 40.72076 | Schwarz criterion | 3.059121 |
| Log likelihood | -75.64663 | Hannan-Quinn criter. | 2.852735 |
| F-statistic | 22.55815 | Durbin-Watson stat | 2.123687 |
| Prob(F-statistic) | 0.0000 | | |